

Meter Catalogue



CET Electric Technology Inc.
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About CET

CET is a leading vendor of Energy Management Systems manufacturing high quality yet economical monitoring solutions which include Digital Power and Energy Meters, PQ Monitors, as well as intelligent Energy Management Systems that cater to a wide range of industries and applications since 1993.

Founded in 1993

2 Production Bases

1000+ Employees

R&D Centres in Shenzhen and Wuhan



Market Presence in 10+ Countries

10+ Distributors

1 Design Institute

Big Data & Cloud Technologies

Sales & Services

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Accreditations



PMC-SCCP-200A-200mV-B-B-B



PMC-SCCP-500A-500mV-B-B-B

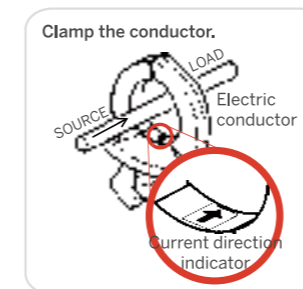


PMC-SCCP-5kA-500mV-B-C-C

20A/200A Selectable	500A	5000A
260A continuous @ 45-66Hz and 25°C	500A continuous @ 45-66Hz and 25°C	10000A continuous @ 45-66Hz and 25°C
AC 10mV/A @ 20A AC 1mV/A @ 200A (Max. 200mV)	AC 1mV/A (Max. 500mV)	AC 1mV/A @ 500A AC 0.1mV/A @ 5000A (Max. 500mV)
±0.3% rdg. ±0.02% f.s. @ 45Hz-66Hz, at core center	±0.3% rdg. ±0.02% f.s. @ 45Hz-66Hz, at core center	2% typical at 1% to 200% of Rated Current @25°C Linearity: ±0.2% of reading (1% to 200% of range)
±0.5° (45Hz to 5kHz)	±0.5° (45Hz to 5kHz)	±1° (45Hz to 5kHz)
±1% (45Hz - 5kHz), deviation from accuracy	±1% (45Hz - 5kHz), deviation from accuracy	±3dB (10Hz - 20kHz), deviation from accuracy
±0.5% (deviation from center)	±0.5% (deviation from center)	±1% maximum
≤0.1A @ 400A/m	≤0.1A @ 400A/m	≤5A (7A max.) @ 400A/m
600 Vrms	600 Vrms	1000 Vrms
24mm (max. conductor diameter)	50mm (max. conductor diameter)	100mm, 150mm, 254mm, 371mm (Measurable conductor diameter)
3m	3m	Cord length: 2m (Coil to Integrator), 1m (Integrator to connector)
64x 130x 26	108x 216x 35	Circuit: 57x 86x 30
300g	500g	180g (Coil), 300g (Integrator)
N/A	N/A	2pcs AA alkaline batteries (not included), Continuous use: 7 days @ 35 mVA. 3.5x1.3mm DC Adaptor included (Input: 100-240VAC, Output: 5V/2A)
BNC	BNC	BNC
CAT III 600V	CAT III 600V	CAT III 1000V
II	II	II
0.02% rdg. / °C	0.02% rdg. / °C	±2% rdg. / °C
3000V AC rms for 15 seconds	3000V AC rms for 15 seconds	6880V AC rms for 15 seconds (between integrator and coil @ 50/60Hz)
0°C to 50°C	0°C to 50°C	-20°C to 70°C
-10°C to 60°C	-10°C to 60°C	-30°C to 90°C
≤80% non-condensing	≤80% non-condensing	≤80% non-condensing
2000m max.	2000m max.	2000m max.
Safety: EN 61010-2-032: 2012 (CAT III 600V)	Safety: EN 61010-2-032: 2012 (CAT III 600V)	Safety: 1000V CAT III, 600V CAT IV EMC: EN 61326-1 2006, CE marked

Disconnect SCCP from Circuit:

- Open the clamp jaw and remove it away from the live conductor.
- Turn the BNC connector counterclockwise to release the lock and pull it from the BNC receptacle.







Ordering Information

Product Code		Description
iMeter 7A Advanced Power Quality Monitor		
Basic Feature	A	IEC 61000-4-30 Ed.3.1 Class A Certified with 2kHz-9kHz C. E. Measurements
	B*	IEC 61000-4-30 Ed.3.1 Class A Certified with 2kHz-150kHz C. E. Measurements
Input Current	5	5A
	1	1A
	SCCT	For use with 100A/200A/400A/800A/1600A to 40mA SCCTs (SCCTs not included)
	SCCTA	For use with 5A/2mA SCCT (SCCTs not included)
	SCCPA [^]	SCCP Option for use with CT Clamps with max. 500mV output (SCCPs not included)
Input Voltage	9	400ULN/690ULL+20%
Power Supply	2	95-250VAC/DC±10%, 47-440Hz
	3	20-60VDC
System Frequency	5	50Hz
	6	60Hz
I/O	A	4xDI+3xDO
	B	4xDI+1xDO+2xSS Pulse Output
	C*	8xDI+5xDO+2xAI
	D*	8xDI+5xDO+2xRTD Input
Communications	A	2x100BaseT+1xRS-485
Display Language		English
iMeter 7A	- A 5 9 2 5 A A E	iMeter 7A-A5925AAE (Standard Model)

* Additional charges apply

[^] SCCPA option does not come with any Current Clamp. Please refer to the "Optional SCCPs" section for more information

Optional SCCPs

				
Model No.	PMC-SCCP-50A-500mV-B-A-B	PMC-SCCP-200A-200mV-B-B-B	PMC-SCCP-500A-500mV-B-B-B	* PMC-SCCP-5kA-500mV-B-C-C-371/254/150/100
Measurement Range	5A (50A I _{max})	20A/200A (200A I _{max})	500A (500A I _{max})	500A/5000A Rogowski Coil (5000A I _{max})
Max. Allowable Current	50A	260A	500A	10,000A
Output Voltage	AC 10mV/A (Maximum 500mV)	AC 10mV/A @ 20A AC 1mV/A @ 200A (Maximum 200mV)	AC 1mV/A (Maximum 500mV)	AC 1mV/A @ 500A AC 0.1mV/A @ 5000A (Maximum 500mV)
Accuracy	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.02% f.s.	±2.0% rdg. (1% - 200%) I _n
Protection	CAT III 300V	CAT III 600V	CAT III 600V	CAT III 1000V CAT IV 600V
Diameter	15mm	24mm	50mm	371/254/150/100 (mm)
Cable Length	3m	3m	3m	3m
Termination	BNC	BNC	BNC	BNC

* The Rogowski coil & integrator set comes with an external Power Supply

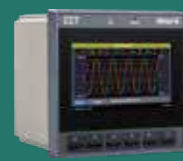


CET Meters

Power Quality Monitor



iMeter 6



iMeter 7A



iMeter 8



iMeter D7

Panel Meter



PMC-53A-E



PMC-53A



PMC-53M-A



PMC-D726M

DIN Rail Meter



PMC-220



PMC-230



PMC-340



PMC-350-C



PMC-352



PMC-352-D

Multi Circuit Monitor



PMC-592



PMC-512-A

PMC-SCCP



5/50A



20/200A



500A



500/5000A

Alarm Output (Alarm)

Loading	5A @ 250VAC or 30VDC
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Current Inputs (-I11, I12, -I21, I22, -I31, I32, -I41, I42)

Standard (In)		5A (Standard), 1A (Optional)
Range		1% to 400% In
Starting Current		0.1% In
Overload		4xIn continuous, 10xIn for 1s
Burden		< 0.5VA/per phase @ 5A
		< 0.1VA/per phase @ 1A
CT Ratio	Primary	1-30,000A
	Secondary	1-50A
	I4 Primary	1-30,000A
	I4 Secondary	1-50A
SCCP Options	SCCP-50A-500mV	5A/50A (In/Imax), max. 500mV Output
	SCCP-200A-200mV	20A/200A (In/Imax), max. 200mV Output
Split-Core Current Probe Input @ max. 500mV	SCCP-500A-500mV	500A Imax, max. 500mV Output
	SCCP-5000A-500mV	Selectable 500A/5000A (Imax) Rogowski Coil, max. 500mV Output
SCCT Options		PMC-SCCT-100A-40mA-16-A, Ø=16mm, Class 0.5
		PMC-SCCT-200A-40mA-24-A, Ø=24mm, Class 0.5
		PMC-SCCT-400A-40mA-35-A, Ø=35mm, Class 0.5
		PMC-SCCT-800A-40mA-A, 80x50mm, Class 0.5
		PMC-SCCT-1600A-40mA-A, 130x55mm, Class 0.5
SCCTA Option		PMC-SCCT-5A-2mA-16-A, Ø=16mm, Class 1

Optional Solid State Pulse Outputs (E1+, E1-, E2+, E2-)

Type	Form A Solid State Relay
Isolation	Optical
Maximum Load Voltage	30VDC
Maximum Forward Current	100mA

Optional Analog Inputs (AI1+, AI1-, AI2+, AI2-, SH)

Type	0-20/4-20 mA DC
Overload	24 mA maximum

Optional Temperature Inputs (TC11, TC12, TC21, TC22, SH)

RTD Type	2-Wire PT100 (sensor not included)
Measurement Range	-40°C to +200°C

GPS Input (CLK+, CLK-, SH)

Type	GPS, IRIG-B
Accuracy	1ms

Terminals Max. Torque

U & I Inputs	1.2N·m
DI, DO, AI, TC, GPS & RS-485	0.4N·m

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	63 kPa to 110 kPa
Pollution Degree	2

Mechanical Characteristics

Panel Cutout	138x138 mm
Unit Dimensions	144x144x128 mm
IP Rating	52

Accuracy Parameters

	Accuracy	Resolution
Voltage (U)	±0.1%	0.001V
I1, I2, I3, I4	5A/1A	±0.1%
	SCCT/SCCTA	±0.1% + Error of SCCT
	SCCPA	±0.1% + Error of SCCP
P, Q, S	5A/1A	±0.2%
	SCCT/SCCTA	±0.5%
	SCCPA	±0.5%
kWh, kVAh	5A/1A	IEC 62053-22 Class 0.2S
	SCCT/SCCTA	IEC 62053-21 Class 1
	SCCPA	IEC 62053-21 Class 1
kvarh	5A/1A	IEC 62053-24 Class 0.5S, IEC 62053-23 Class 2
	SCCT/SCCTA	IEC 62053-24 Class 1, IEC 62053-23 Class 2
	SCCPA	IEC 62053-24 Class 1, IEC 62053-23 Class 2
PF	5A/1A	±0.2%
	SCCT/SCCTA	±0.5%
	SCCPA	±0.5%
Fundamental Phase Angle	5A/1A	±0.2°
	SCCT/SCCTA	±0.2° + Phase Error of SCCT
	SCCPA	±0.2° + Phase Error of SCCP
Harmonics Phase Angle	5A/1A	±5°
	SCCT/SCCTA	±5° + Phase Error of SCCT
	SCCPA	±5° + Phase Error of SCCP
Freq., Freq. Deviation	±0.003Hz	0.001Hz
Harmonics, Interharmonics	IEC 61000-4-7 Class I	0.01%
U Unbalance	±0.1 %	0.01%
I Unbalance	±0.5%	0.01%
Pst, Plt	IEC 61000-4-15 Class F1	0.001

Technical Specifications

Voltage Inputs (V1, V2, V3, VN, V4, V4N)

Standard (Un)	400VLN/690VLL +20%	
Range	5V to 2Un for 400VLN nominal	
Overload	2xUn continuous, 4xUn for 1s	
Burden	< 0.5VA/per phase	
PT Ratio	Primary	1-1,000,000V
	Secondary	1-1,500V
	V4 Primary	1-1,000,000V
	V4 Secondary	1-1,500V
Measurement Category	CAT III 1000V	
Frequency	40Hz-60Hz @ 50Hz, 48Hz-72Hz @ 60Hz	

Power Supply (L+, N-)

Standard	95-250VAC/VDC ± 10%, 47-440Hz
Optional	20-60VDC
Burden	< 14VA/10W @ 250VAC/DC, < 6W @ 24VDC
Overvoltage Category	OVC III 300V

Digital Inputs (DIC, DI1, DI2, DI3, DI4, DIC2, DI5, DI6, DI7, DI8)

Standard	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Digital Outputs (DO11, DO12, DO21, DO22, DO31, DO32, DO41, DO42)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC/30VDC

Contents

Power Quality Monitor

iMeter 6	01
iMeter 7A	07
iMeter 8	15
iMeter D7	23

Panel Meter

PMC-53A-E	31
PMC-53A	36
PMC-53M-A	42
PMC-D726M	46





DIN Rail Meter

PMC-220	51
PMC-230	55
PMC-340	59
PMC-350-C	63
PMC-352	68
PMC-352-D	73

Multi Circuit Monitor

PMC-592	77
PMC-512-A	85

PMC-SCCP	91
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Key Features	Power Quality Monitors				
	iMeter 6	iMeter 7A	iMeter 8	iMeter D7	
Class (kWh)	0.2S	0.2S	0.2S	0.2S	
Dimensions (mm)					
	96(W)x96(H)x119.5(D)	144(W)x144(H)x128(D)	192(W)x192(H)x182.4(D)	145(W)x124(H)x77(D)	
Display (Backlit)	Color IPS 320x240 (Backlit)	Color TFT 800x480 (Backlit)	Color TFT 800x480 (Backlit)	Color IPS 320x240 (Backlit)	
True RMS Sampling Rate	256	1024	1024	1024	
Battery-backed Real-time Clock	✓	✓	✓	✓	
Operating Temperature (°C)	-25 to 70	-25 to 70	-25 to 70	-25 to 70	
Communications	Protocol	Modbus RTU, Modbus TCP, HTTPS, SNMP, SMTPS, FTPS, SNMP, Ethernet Gateway, BACnet/IP, IEC61850	Modbus RTU, Modbus TCP, HTTPS, NTP, SMTPS, SNMP, FTPS, Ethernet Gateway, MQTT, IPsec VPN and IEC61850, IEEE1588 (PTP)	Modbus RTU, Modbus TCP, HTTPS, SNMP, SMTPS, FTPS, MQTT, IPsec VPN, Ethernet Gateway, IEC61850, IEEE1588 (PTP)	
	RS-485 Port	1	1	2	1
	Ethernet	1	2	2	2
	Web Server	✓	✓	✓	✓
I/O	Digital Input (DI)	6	4 (8 Opt.)	8 (16 Opt.)	4
	Pulse Counter	✓	✓	✓	✓
	Mechanical Digital Output (DO)/ Solid State Output (SS)	3DO	3DO (Opt. 1DO +2SS or Opt. 5DO)	4DO+4SS (Opt. 8DO +4SS or 4DO+2SS)	3DO or (3 Opt.)SS
	Analog Input (AI), 0/4-20mA	(1 Opt.)	(2 Opt.)	(2 Opt.)	(2 Opt.)
	Analog Output (AO), 0/4-20mA	-	-	(1 or 2 Opt.)	-
	kWh & kvarh Pulse Output (LED)	✓	✓	✓	✓
	kWh & kvarh Pulse Output	-	2	4 (2 Opt.)	3
IRIG-B (GPS)	✓	✓	✓	✓	
Measurements	ULN per Phase & Avg.	✓	✓	✓	✓
	ULL per Phase & Avg.	✓	✓	✓	✓
	Current per Phase & Avg.	✓	✓	✓	✓
	Neutral Current (Meas./Calc.)	✓	✓	✓	✓
	Frequency	✓	✓	✓	✓
	kW per Phase & Total	✓	✓	✓	✓
	kvar per Phase & Total	✓	✓	✓	✓
	kVA per Phase & Total	✓	✓	✓	✓
	PF per Phase & Total	✓	✓	✓	✓
	kWh Import/Export	✓	✓	✓	✓
	kvarh Import/Export	✓	✓	✓	✓
	kVAh Total	✓	✓	✓	✓
	Demands & TOU	✓	✓	✓	✓
	Maximum Demands	✓	✓	✓	✓
Setpoints	✓	✓	✓	✓	
Power Quality	THD Voltage & Current	✓	✓	✓	✓
	TOHD Voltage & Current	✓	✓	✓	✓
	TEHD Voltage & Current	✓	✓	✓	✓
	K-Factor	✓	✓	✓	✓
	Individual Harmonics	2 nd - 63 rd	2 nd - 63 rd	2 nd - 63 rd	2 nd - 63 rd
	Voltage/Current Unbalance	✓	✓	✓	✓
	Waveform Capture on Screen	✓	✓	✓	✓
	Waveform Recording	✓	✓	✓	✓
	Dip Swell Detection	✓	✓	✓	✓
	Transient Detection	✓	✓	✓	✓
	IEC61000-4-30	Ed.3 Class S Compliant	Ed.3.1 Class A Certified	Ed.3.1 Class A Certified	Ed.3 Class A Certified
2-150kHz Conducted Emission	-	Compliant	Compliant	Compliant	
Logs	SOE Log	512 entries	1024 entries	1024 entries	1024 entries
	PQ Log	512 entries	1024 entries	1024 entries	1024 entries
	Energy Log	✓	✓	✓	✓
	Max./Min. Log	✓	✓	✓	✓
	On-board Log Memory	2GB	4GB	8GB	4GB

Legend: (Opt.)-Optional (Via Comm.)-Via Communication (Meas./Calc.)-Measured Value/Calculated Value (Dmd.)-Demand

Transients Recording

- Transients capture as short as 20us @ 50Hz or 16.67us @ 60Hz at 1024 samples for sub-cycle disturbances such as capacitor switching and resonance phenomena
- Trigger for DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email
- Display of Event specific WFR, DWR and/or RMSR on the Front Panel and Web Interface

Dips, Swells, Interruptions Recording

- Dips, Swells and Interruptions detection @ 10ms (½ cycle at 50Hz)
- Trigger for DO, SOE Log, DR, WFR, DWR, RMSR, iTrigger and Alarm Email
- Configurable DO triggered by Start or End of a PQ disturbance
- Display of Event specific WFR, DWR and/or RMSR as well as the associated ITIC/SEMI F47 plot on the Front Panel and Web Interface
- ITIC/SEMI F47 Alarm trigger for DO and iTrigger upon the detection of PQ disturbances that are outside of the respective tolerance curves

Rapid Voltage Change (RVC)

- Detection of a quick transition in RMS Voltage between two steady-states

Inrush Current Monitoring

- Monitoring of the ½ cycle RMS Current and capturing of the Current Waveforms associated with events such as motor starting and transformer being energized

Disturbance Direction Indicator

- Determine if a PQ Event is located upstream or downstream
- Pinpoint if the cause of the event is external or internal

PQ Event Counters

- Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Currents, Mains Signalling Voltages and Total PQ Event Counters



Real-Time Waveform Capture (WFC) and Waveform Recorder (WFR)

- Real-time WF Capture @ 128 samples/cycle x 4 cycles
- WFR with maximum 128 entries
- Simultaneous capture of 4-phase Voltage and Current Inputs
- (Range of Cycles) x Samples/Cycles with programmable pre-fault and post-fault cycles: (40-400)x1024, (40-800)x512, (40-1600)x256, (40-3200)x128
- Scheduled WFR with max. repetition of 10,000 times and programmable schedule from 1 to 65535 min.
- COMTRADE file format, downloadable from the on-board Web Server or FTPS Servers

Disturbance Waveform Recorder (DWR)

- 128 entries
- Simultaneous recording of all Voltage (U1-U4) and Current (I1-I4) Inputs
 - Initial Fault: 35 cycles @ 512 samples/cycle
 - Extended Fault: Up to 150 cycles @ 16 samples/cycle
 - Steady State: Up to 360s of 1-cycle absolute peakvalues
 - Post Fault: 15 cycles @ 512 samples/cycle

RMS Recorder (RMSR)

- 128 entries
- 16 channels max., selectable U, I, P, Q, S, PF, Freq., Freq. Deviation
- Recording Interval from 0.5 to 60 cycles
- Recording Width @ 7200 samples per parameter
- Configurable pre-fault samples from 100 to 500
- 72 seconds of ½ cycle RMS recording @ 50Hz or 60 seconds @ 60Hz

Time Synchronization

- Battery-backed Real-time clock @ 6ppm (± 0.5s/day)
- Time Sync. with auto-selection among Modbus RTU, NTP, GPS 1PPS, IRIG-B and IEEE 1588 (PTP)



Inputs and Outputs

Digital Inputs

- Standard 4 or optional 8 channels, volt free dry contact, 24VDC Internal Excitation

Digital Outputs

- Standard 2 and optional 4 channels Form A Mechanical Relays for general purpose control or alarming
- Optional 2 SS Relays for Energy pulsing applications
- 1 Normally Closed Mechanical Relay for LOP Alarm

Analog Inputs (Optional)

- Optional 2xAI, 0/4-20mA DC input with programmable zero and full scales that can be used to measure external transducer signal
- Optional 2xRTD for Temperature Measurements (PT100 Sensor not included)

Communications

RS-485 (P3)

- One optically isolated RS-485 port with Baud Rate from 1.2 kbps to 38.4 kbps
- Support Modbus RTU and Ethernet Gateway

Ethernet Ports (P1, P2)

- Dual 10/100BaseT Ethernet Ports with RJ45 connector
- Selectable IP Addressing Mode – DHCP and Static
- White List for Client Access Control
- Protocols supported: Modbus TCP, HTTPS, NTP, SMTPS, SNMP, FTPS, MQTT, IPsec VPN and IEC61850
- Built-in password protected Web Server with multiple user accounts and pre-defined roles for easy data viewing, setup configuration and firmware upgrade
- Simultaneous client connections for 12xModbus TCP and 4xIEC61850

Setpoints

PQ Setpoint

- Transients, Dips, Swells, Interruptions, ITIC Alarm, SEMI F47 Alarm
- Rapid Voltage Changes, Inrush Current
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Motor Start Setpoint

- Monitoring motor startup procedure with recording of Max. Starting Current, Minimum Voltage and Duration
- Trigger DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Control Setpoint

- 64 Control Setpoints can be configured with extensive monitoring sources including U, I, P, Q, S, Demands, Harmonics, Unbalances, Deviations, Flickers, Phase Reversal/Loss, TC and AI, etc.
- Configurable thresholds and time delays
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Digital Input Setpoint

- Provides Control Output Actions in response to changes in DI status
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Power Quality Metering

PQ Parameters as per IEC61000-4-30 Ed.3.1 Class A Certified

- Power Frequency
- Magnitude of the Supply Voltage
- Flicker
- Supply Voltage Interruptions, Dips and Swells
- Supply Voltage Unbalance
- Voltage Harmonics and Interharmonics
- Mains Signalling Voltage on the Supply Voltage
- Rapid Voltage Changes
- Measurement of Over Deviation and Under Deviation Parameters
- Magnitude of Current
- Current Harmonics and Interharmonics
- Current Unbalance
- 2kHz to 150kHz Conducted Emission Measurements

Harmonic and Interharmonic Measurements





- K-Factor for Current, Crest Factor for Current and Voltage
- U and I THD, TOHD, TEHD, TIHD, TOIHD, TEIHD and TH (RMS)
- U and I Individual Harmonics (%HD and RMS) from 2nd to 63rd#
- U and I Individual Interharmonics (%IHD and RMS) from 1st to 63rd#
- Total Harmonic P, Q, S and PF
- Harmonic P, Q, S and PF from 2nd to 63rd in RMS
- Fundamental U, I, P, Q, S Phase Angle and Displacement PF
- Harmonic Phase Angle from 2nd to 63rd
- U and I DC Components
#%HD and %IHD can be configured as % of Fundamental, % of U/I nominal or % of RMS





Sequence and Unbalance

- Zero, Positive and Negative Sequence Components
- U and I Unbalance based on Zero and Negative Sequence Components

Conducted Emissions in the 2kHz to 150kHz Range

- Real-time amplitude (150/180-cycle) and the Max., Min., Avg. and 95th percentile values (in 1-min interval) for Voltage channels with a total of 106 frequency segments (2kHz-150kHz range) and Current channels with a total of 35 frequency segments (2kHz-9kHz range)
- Daily Heat Map display on the Web Interface for the Max., Min., Avg. and 95th percentile values

Multi-Function Panel Meters					Key Features	General
PMC-D726M	PMC-53A	PMC-53M-A	PMC-53A-E			
1	0.5S	0.5S	0.5S	0.5S	Class (kWh)	General
					Dimensions (mm)	
72(W)x72(H)x76.8(D)	96(W)x96(H)x88(D)	96(W)x96(H)x88(D)	96(W)x96(H)x88(D)		Display (Backlit)	
B&W (Backlit)/LED	Dot-Matrix LCD (Backlit)	B&W (Backlit)	Dot-Matrix LCD (Backlit)		True RMS Sampling Rate	
64	64	64	64		Battery-backed Real-time Clock	
-	√	√	√	√	Battery-backed Real-time Clock	Communications
-25 to 70	-25 to 70	-25 to 70	-25 to 70	-25 to 70	Operating Temperature (°C)	
Modbus RTU	Modbus RTU, BACnet MS/TP, Metasys N2 and DNP3.0	Modbus RTU	Modbus RTU, Modbus TCP, HTTP, BACnet MS/TP, DNP3.0, Ethernet Gateway, SNMP, SMTP, TFTP	Protocol		
1	1 + (1 Opt.)	1	1	RS-485 Port		
-	-	-	√	Ethernet		
-	-	-	√	Web Server		
(2 Opt.)	(6 Opt.)	(4 Opt.)	4	Digital Input (DI)		I/O
-	√	√	√	Pulse Counter		
(2 Opt.)DO	(4 Opt.)DO or (4 Opt.)SS	(2 Opt.)DO	2DO or (2 Opt.)SS	Mechanical Digital Output (DO)/ Solid State Output (SS)		
-	(1 Opt.)	-	(1 Opt.)	Analog Input (AI), 0/4-20mA		
(1 Opt.)	(1 Opt.)	-	-	Analog Output (AO), 0/4-20mA		
√	√	√	√	kWh & kvarh Pulse Output (LED)		
-	(4 Opt.)	-	(2 Opt.)	kWh & kvarh Pulse Output		
-	-	-	-	IRIG-B (GPS)		
√	√	√	√	ULN per Phase & Avg.		Measurements
√	√	√	√	ULL per Phase & Avg.		
√	√	√	√	Current per Phase & Avg.		
(Calc.)	√	(Calc.)	√	Neutral Current (Meas./Calc.)		
√	√	√	√	Frequency		
√	√	√	√	kW per Phase & Total		
√	√	√	√	kvar per Phase & Total		
√	√	√	√	kVA per Phase & Total		
√	√	√	√	PF per Phase & Total		
√	√	√	√	kWh Import/Export		
√	√	√	√	kvarh Import/Export		
√	√	Dmd. Only	√	kVAh Total		
√	√	√	√	Demands & TOU		
√	√	√	√	Maximum Demands		
√	√	√	√	Setpoints		
√	√	√	√	THD Voltage & Current		Power Quality
√	√	√	√	TOHD Voltage & Current		
√	√	√	√	TEHD Voltage & Current		
√	√	√	√	K-Factor		
2 nd - 31 st	2 nd - 31 st	2 nd - 31 st	2 nd - 31 st	Individual Harmonics		
√	√	√	√	Voltage/Current Unbalance		
-	√	-	√	Waveform Capture on Screen		
-	-	-	-	Waveform Recording		
-	-	-	-	Dip Swell Detection		
-	-	-	-	Transient Detection		
-	-	-	-	IEC61000-4-30		
-	-	-	-	2-150kHz Conducted Emission		
16 entries	100 entries	100 entries	100 entries	SOE Log		Logs
-	-	-	-	PQ Log		
-	√	-	√	Energy Log		
-	√	√	√	Max./Min. Log		
-	(4MB Opt.)	-	8MB	On-board Log Memory		

Key Features	DIN Rail Meters				
	PMC-220	PMC-230	PMC-340	PMC-350-C	
Class (kWh)	0.5	1	0.5 for 100A Direct Input, 0.5S for 5A CT Input	1	
Dimensions (mm)					
	36(W)x90(H)x65(D)	72(W)x90(H)x68(D)	126(W)x90(H)x65(D)	72(W)x95(H)x70(D)	
Display (Backlit)	B&W (No Backlit)	B&W (No Backlit)	B&W (No Backlit)	B&W (No Backlit)	
True RMS Sampling Rate	36	36	64	64	
Battery-backed Real-time Clock	-	✓	✓	✓	
Operating Temperature (°C)	-25 to 70	-25 to 70	-25 to 70	-25 to 70	
Communications	Protocol	Modbus RTU	Modbus RTU	Modbus RTU	Modbus RTU (Optional LoRaWAN support at AS923-1/2/3/4/ KR920/AU915/EU868)
	RS-485 Port	1	1	1	1
	Ethernet	-	-	-	-
	Web Server	-	-	-	-
I/O	Digital Input (DI)	-	3	(3 Opt.)	(4 Opt.)
	Pulse Counter	-	✓	✓	✓
	Mechanical Digital Output (DO)/ Solid State Output (SS)	1SS	1SS	1SS	(2 Opt.)DO or (2 Opt.)SS
	Analog Input (AI), 0/4-20mA	-	-	-	-
	Analog Output (AO), 0/4-20mA	-	-	-	-
	kWh & kvarh Pulse Output (LED)	✓	✓	✓	✓
	kWh & kvarh Pulse Output	1	1	1	2
IRIG-B (GPS)	-	-	-	-	
Measurements	ULN per Phase & Avg.	1 Phase only	1 Phase only	✓	✓
	ULL per Phase & Avg.	-	-	✓	✓
	Current per Phase & Avg.	1 Phase only	1 Phase only	✓	✓
	Neutral Current (Meas./Calc.)	-	-	(Calc.)	✓
	Frequency	✓	✓	✓	✓
	kW per Phase & Total	1 Phase only	1 Phase only	✓	✓
	kvar per Phase & Total	1 Phase only	1 Phase only	✓	✓
	kVA per Phase & Total	1 Phase only	1 Phase only	✓	✓
	PF per Phase & Total	1 Phase only	1 Phase only	✓	✓
	kWh Import/Export	✓	✓	✓	✓
	kvarh Import/Export	✓	✓	✓	✓
	kVAh Total	✓	✓	✓	✓
Demands & TOU	-	✓	✓	✓	
Maximum Demands	-	✓	✓	✓	
Setpoints	-	-	-	✓	
Power Quality	THD Voltage & Current	-	✓	✓	✓
	TOHD Voltage & Current	-	-	✓	✓
	TEHD Voltage & Current	-	-	✓	✓
	K-Factor	-	-	✓	✓
	Individual Harmonics	-	-	2 nd - 31 st	2 nd - 31 st
	Voltage/Current Unbalance	-	-	✓	✓
	Waveform Capture on Screen	-	-	-	-
	Waveform Recording	-	-	-	-
	Dip Swell Detection	-	-	-	-
	Transient Detection	-	-	-	-
IEC61000-4-30	-	-	-	-	
2-150kHz Conducted Emission	-	-	-	-	
Logs	SOE Log	-	32 entries	16 entries (Opt.)	100 entries
	PQ Log	-	-	-	-
	Energy Log	-	✓	✓	✓
	Max./Min. Log	-	-	✓	✓
	On-board Log Memory	-	4MB	(2MB Opt.)	4MB

Legend: (Opt.)-Optional (Via Comm.)-Via Communication (Meas./Calc.)-Measured Value/Calculated Value (Dmd.)-Demand

Main Features

Metering

Basic Measurements (1-second update)

- 3-phase U, I, P, Q, S and PF as well as U4, I4, Ung, Frequency and IR

High-Speed Measurements for Event Detection

- 3-phase U, I, P, Q, S and PF as well as U4 and I4 @ ½ cycle
- Frequency @ 1 cycle

Energy

- Per-phase kWh, kvarh Import/Export/Net/Total and kVAh Total
- Total RMS kWh, kvarh Import/Export/Net/Total and kVAh Total
- Total Fundamental kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export from 2nd to 63rd

Demands

- Present and Predicted Demand for 3-phase U, I, I Fund., P, Q, S and PF as well as U4, I4, I4 Fund., Frequency
- Present Demand for 4-phase U & I THD/TOHD/TEHD, 4-phase Current K-Factor, U and I Unbalances as well as Voltage Deviations and Frequency Deviation
- Max./Min. values per Demand Interval
- Maximum Demands for This Month & Last Month (or Since Last Reset & Before Last Reset)
- Demand Synchronization with DI

Multi-Tariff TOU Capability

- Two independent sets of TOU Schedules
 - Up to 12 Seasons
 - 90 Holidays or Alternate Days and 3 Weekdays
 - 20 Daily Profiles, each with 12 Periods in 15-minute intervals
 - 8 Tariffs, each providing kWh/kvarh/kVAh, P & Q Maximum Demands
 - Register rollover at 100,000,000,000.000 kXh
- Switching between two TOU schedules manually or according to pre-programmed time
- 12 Historical Logs for Energy and Maximum Demand

Data and Event Recorders

- 4 GB on-board log Memory

Interval Energy Recorder (IER) and Accumulative Energy Recorder (AER)

- Both IER Log and AER Log support the recording of per-phase and Total RMS kWh, kvarh Import/Export/Total/Net and kVAh Total, Total Fundamental/Harmonic kWh, kvarh Import/Export
- Recording Interval from 1 minute to 65535 minutes
- Max. Recording Depth @ 65535 records
- Support FIFO and Stop-When-Full mode

Statistical Data Recorder (SDR)

- 8 SDR Logs of max. 64 parameters each
- Recording of the Max., Min., Avg. and 95th percentile values for Real-time Measurements including U, I, P, Q, S, PF, Freq., Harmonics, Deviations and Unbalances
- Recording Interval from 1 to 60 minutes
- 90 days @ 3-minute, 300 days @ 10-minute, 450-day @ 15-minute.
- Downloadable via free software
- support FIFO or Stop-When-Full mode

Max./Min. Recorder (MMR)

- 4 Max./Min. Recorders of 20 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Mains Signalling Voltages, Unbalances and Flicker
- Two transfer modes:
 - Manual: Max./Min. Since Last Reset & Before Last Reset
 - Auto: Max./Min. of This Month & Last Month

Data Recorder (DR)

- 8 DR Logs of max. 64 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Deviations, MSV, Unbalances and Flicker
- Configurable Recording Offset and Interval from 1s to 40 days
- Max. Recording Depth @ 65535 records
- Support FIFO or Stop-When-Full mode

SOE Log

- 1024 FIFO events time-stamped to ±1ms resolution
- Setpoint events, I/O operations, Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Current, Mains Signalling Voltages, Motor Start, iTrigger, etc.
- Record the characteristics data of Setpoint event as well as WFR, DWR, RMSR, ITIC and SEMI F47 Curve for PQ events

Device Log

- 1024 FIFO entries time-stamped to ±1ms resolution
- Power On/Off, Setup changes, Time Sync., Device Operations and Self-diagnostics

iTrigger

- Cross trigger DO, SOE Log, WFR, DWR, RMSR and Alarm Email with other iMeter devices within the same local area network (LAN)
- Provides Group ID and MAC Address as the trigger source

IEEE Std 519-2022 Report

- 365 Daily Reports for statistical evaluations on Voltage and Current Harmonics based on 99th percentile very short time (3 s) values
- 52 Weekly Reports for statistical evaluations on Voltage Harmonics (95th percentile) and Current Harmonics (95th and 99th percentile) short time (10 min) values
- Programmable settings for Report Mode, PCC Voltage, Max. Short Circuit Current, etc.

iMeter 7A

Advanced Power Quality Monitor



- ✓ 4GB On-board Memory
- ✓ IEC 62053-22 Class 0.2S
- ✓ Unit Dimensions @ 144x144x128 mm
- ✓ High-Resolution, Color TFT LCD Display
- ✓ Dual 100BaseT Ethernet and one RS-485 Ports
- ✓ IEC 61000-4-30 Edition 3.1 Class A Certified
- ✓ Conducted Emissions in 2-150kHz Range
- ✓ EN 50160 and IEC61850, IEEE Sta 519-2022

Features Summary

General

Class (kWh)	0.2S
Dimensions (mm)	144(W)x144(H)x128(D)
Display (Backlit)	Color TFT 800x480 (Backlit)
True RMS Sampling Rate	1024
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, Modbus TCP, HTTPS, NTP, SMTPS, SNMP, FTPS, Ethernet Gateway, MQTT, IPsec VPN and IEC61850, IEEE1588 (PTP)
RS-485 Port	1
Ethernet	2
Web Server	✓

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 63 rd
Voltage/Current Unbalance	✓
Waveform Capture on Screen	✓
Waveform Recording	✓
Dip Swell Detection	✓
Transient Detection	✓
IEC 61000-4-30 Ed.3.1 Class A Certified	
2-150kHz Conducted Emission	Compliant

Logs

SOE Log	1024 entries
PQ Log	1024 entries
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	4GB

I/O

Digital Input (DI)	4 (8 Opt.)
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	3DO (Opt, 1DO +2SS or Opt, 5DO)
Analog Input (AI), 0/4-20mA	(2 Opt.)
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	2
IRIG-B (GPS)	✓

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

	DIN Rail Meters		Multi-Circuit Monitors		Key Features
	PMC-352	PMC-352-D	PMC-592	PMC-512A	
	1	1 DC Energy Meter	0.5S	1	Class (kWh)
					Dimensions (mm)
	36(W)x90(H)x65(D)	36(W)x90(H)x65(D)	260.5(W)x154(H)x55.5(D)	126(W)x90(H)x65(D)	Display (Backlit)
	-	-	Optional Color TFT 800x480 (Backlit)	B&W (Backlit)	True RMS Sampling Rate
	64	64	64	64	Battery-backed Real-time Clock
	-	-	✓	✓	Operating Temperature (°C)
	-25 to 70	-25 to 70	-25 to 70	-25 to 70	
	Modbus RTU (Built-in LoRa with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925)	Modbus RTU LoRa*(Built-in LoRa with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925)	Modbus RTU, Modbus TCP, SNMP, SNTIP, SMTP, HTTP	Modbus RTU	Protocol
	1	1	2	2	RS-485 Port
	-	-	1	-	Ethernet
	-	-	✓	-	Web Server
	3	3	2	12	Digital Input (DI)
	✓	-	✓	✓	Pulse Counter
	-	-	2DO	1DO	Mechanical Digital Output (DO)/ Solid State Output (SS)
	-	-	-	-	Analog Input (AI), 0/4-20mA
	-	-	-	-	Analog Output (AO), 0/4-20mA
	-	-	✓	✓	kWh & kvarh Pulse Output (LED)
	-	-	-	-	kWh & kvarh Pulse Output
	-	-	-	-	IRIG-B (GPS)
	✓	DC Voltage	✓	✓	ULN per Phase & Avg.
	✓	-	✓	✓	ULL per Phase & Avg.
	✓	DC Current	✓	✓	Current per Phase & Avg.
	-	-	Meas.	✓	Neutral Current (Meas./Calc.)
	✓	-	✓	✓	Frequency
	✓	kW	✓	✓	kW per Phase & Total
	✓	-	✓	✓	kvar per Phase & Total
	✓	-	✓	✓	kVA per Phase & Total
	✓	-	✓	✓	PF per Phase & Total
	✓	kWh	✓	✓	kWh Import/Export
	✓	-	✓	✓	kvarh Import/Export
	✓	-	✓	✓	kVAh Total
	Dmd. Only	Dmd. Only	✓	Dmd. Only	Demands & TOU
	-	-	✓	✓	Maximum Demands
	✓	✓	✓	✓	Setpoints
	✓	-	✓	✓	THD Voltage & Current
	✓	-	✓	✓	TOHD Voltage & Current
	✓	-	✓	✓	TEHD Voltage & Current
	-	-	✓	✓	K-Factor
	2 nd - 31 st	-	2 nd - 31 st	2 nd - 31 st	Individual Harmonics
	✓	-	✓	✓	Voltage/Current Unbalance
	-	-	-	-	Waveform Capture on Screen
	-	-	✓	-	Waveform Recording
	-	-	✓	-	Dip Swell Detection
	-	-	-	-	Transient Detection
	-	-	-	-	IEC61000-4-30
	-	-	-	-	2-150kHz Conducted Emission
	16 entries	16 entries	1000 entries	512 entries	SOE Log
	-	-	-	-	PQ Log
	-	-	✓	✓	Energy Log
	-	-	✓	-	Max./Min. Log
	8KB	-	1GB	4MB	On-board Log Memory

General

Communications

I/O

Measurements

Power Quality

Logs

iMeter 6

Advanced Power Quality Monitor



- ✓ 2GB On-board Log Memory
- ✓ Class 0.2S Revenue Metering
- ✓ DIN form factor measuring @ 96x96x119.5 mm
- ✓ IPS Color Dot-Matrix Display @ 320x240
- ✓ 10/100BaseT Ethernet Port and RS-485 Port
- ✓ IEC 61000-4-30 Class S Compliance and EN 50160 Report

Features Summary

General

Class (kWh)	0.2S
Dimensions (mm)	96(W)x96(H)x119.5(D)
Display (Backlit)	Color IPS 320x240 (Backlit)
True RMS Sampling Rate	256
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, Modbus TCP, HTTPS, SNMP, SMTPS, FTPS, SNMP, Ethernet Gateway, BACnet/IP, IEC61850
RS-485 Port	1
Ethernet	1
Web Server	✓

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Logs

SOE Log	512 entries
PQ Log	512 entries
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	2GB

I/O

Digital Input (DI)	6
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	3DO
Analog Input (AI), 0/4-20mA	(1 Opt.)
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	✓

Power Quality

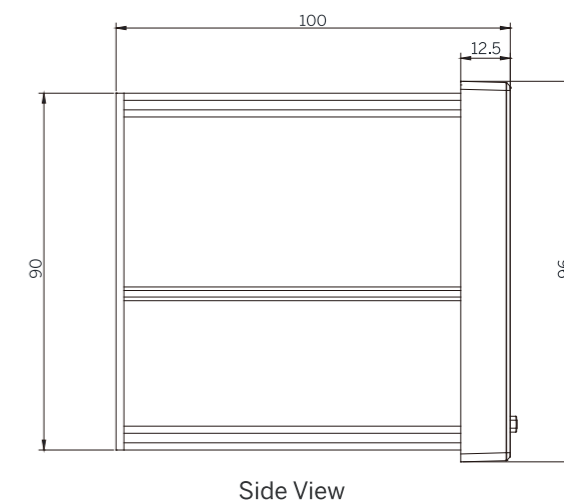
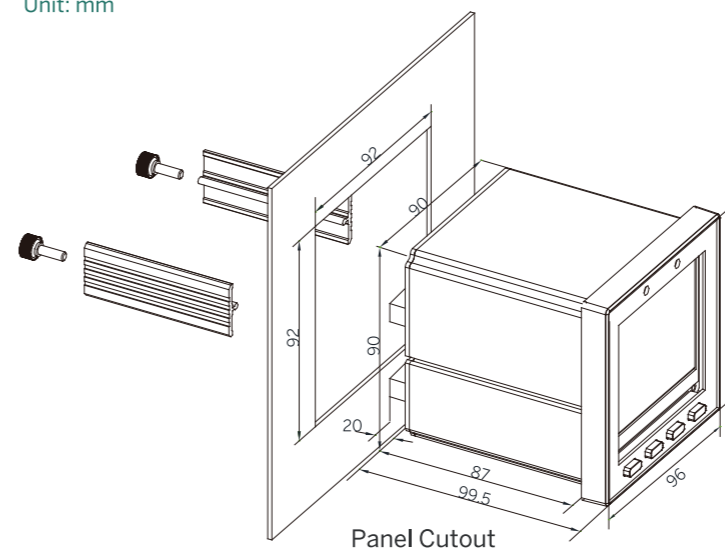
THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 63 rd
Voltage/Current Unbalance	✓
Waveform Capture on Screen	✓
Waveform Recording	✓
Dip Swell Detection	✓
Transient Detection	✓
IEC61000-4-30	Ed.3 Class S Compliant
2-150kHz Conducted Emission	-

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

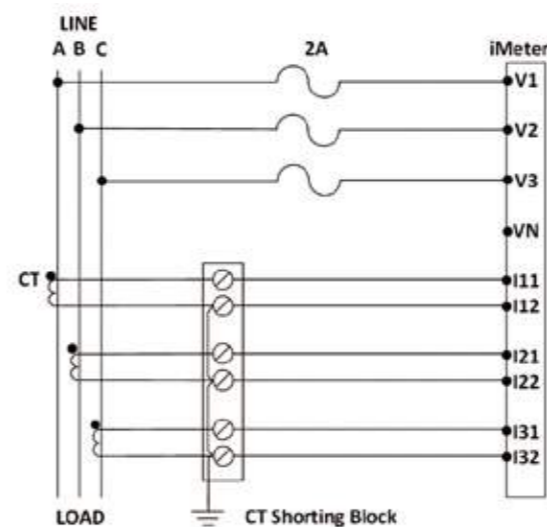
Device View and Dimensions

Unit: mm

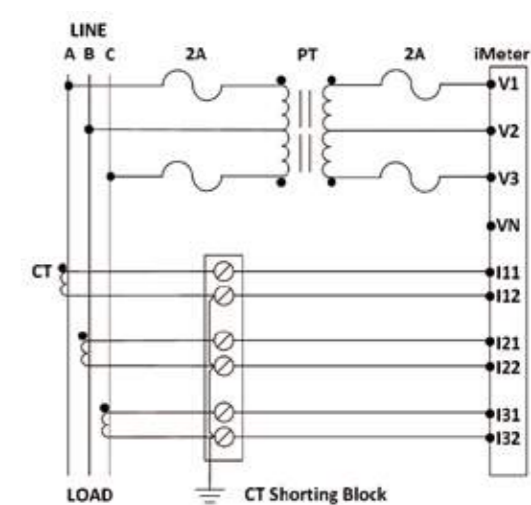
iMeter 6



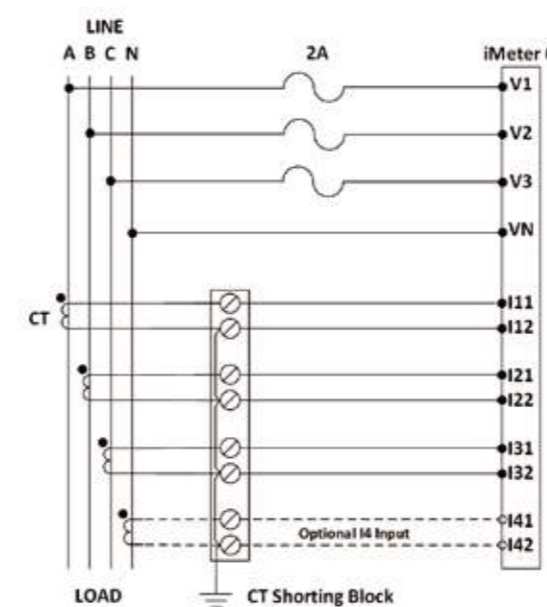
Wiring Diagrams



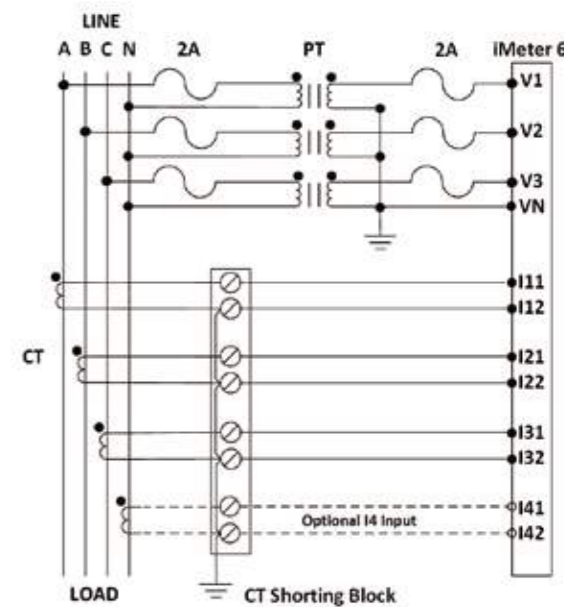
3P3W Direct Connections with 3CTs



3P3W Open Delta with 2PTs, 3CTs



3P4W Wye Direct Connection with 3CTs or 4CTs (Optional I4 Input)



3P4W Wye with 3PTs and 3CTs or 4CTs (Optional I4 Input)

Analog Input (AI+, AI-)

Type	0-20/4-20 mA
Overload	24 mA maximum

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Altitude	< 3000m
Pollution Degree	2

Mechanical Characteristics

Enclosure	Aluminum Alloy
Panel Cutout	92x92 mm
Unit Dimensions	96x96x119.5 mm
Shipping Dimensions	300x220x160 mm
IP Rating	54
Shipping Weight	1.18 kg

Ordering Information**Product Code****Description**

iMeter 6 Advanced Power Quality Monitor											
Basic Function	IEC 62053-22 Class 0.2S Compliant, 3-Phase True RMS Metering, Individual Harmonics to 63 rd , 2GB Log Memory, 32 Data Recorders, IER Log, PQ Log, SOE Log, Dips/Swells/Interruptions and Transients Detections, WF Recording @ 256 samples/cycle, IEC 61000-4-30 Class S Compliance and EN50160 Report										
Display Screen	B	Color Dot-Matrix IPS Display (320x240 Resolution)									
Input Current (I1, I2, I3, I4#)	5	5A									
	1	1A									
Input Voltage (V1, V2, V3)	9	400ULN/690ULL +20%									
Power Supply	2	95-277VAC L-N/415VAC L-L, 45-65Hz 90-300VDC									
	3	20-60VDC									
System Frequency	5	42Hz-69Hz									
DI/DO	A	6xDI + 3xDO									
AI	X	No									
	A*#	1xAnalog Input (0-20mA or 4-20mA DC)									
Communications	D	1x10/100BaseT Ethernet port + 1xRS-485 port									
Display Language	E	English									
iMeter 6	-	B	5	9	2	5	A	X	D	E	iMeter 6-B5925AXDE (Standard Model)

* Additional charges apply

If AI Option A is selected, the I4 Input will be replaced by the 0/4-20mA Analog Input

Main Features Metering**Basic Measurements (1 second update)**

- 3-phase U, I, Neutral-Earth Voltage (Ung), and Power Measurements
- Neutral Current (I4), Calculated Residual Current (Ir) and Frequency
- kWh, kvarh Import/Export/Net/Total and kVAh Total
- kvarh Q1-Q4
- Interval Energy
- Voltage and Current Phase Angle
- Device Operating Time (Running Hours)
- DI Pulse Counters
- Optional AI Measurement

High-Speed Measurements

- 3-phase U @ ½ cycle, I, Neutral Current, Power and PF @ 1 cycle

Demands

- Present and Predicted Demands for 3-phase U, I, P, Q, S, PF, as well as I4, Frequency, U and I Unbalance and THD
- Maximum Demands with Timestamp for ULL, ULN & Current per phase and average as well as Power of This Month & Last Month (or Since Last Reset & Before Last Reset)

- Max./Min. values per demand interval

- Demand synchronization with DI

Multi-Tariff TOU Capability

- Two independent sets of TOU Schedules
 - Up to 12 Seasons
 - 90 Holidays or Alternate Days
 - 20 Daily Profiles, each with 12 Periods at minimum 15-minute interval
 - 8 Tariffs, each providing kWh/kvarh Import/Export and kVAh
- Switching between two TOU schedules according to pre-programmed time and logged as an SOE event

Data and Event Recorders

- 2GB on-board Memory

Energy Log

- Interval recording of kWh/kvarh Import/Export and kVAh Total in programmable recording interval from 1 min to 65535 mins
- Support FIFO or Stop-When-Full Recording Mode

Data Recorder (DR)

- 28 Standard DR Logs and 4 High-Speed DR Logs
- Recording Interval from 1s to 40 days for Standard DR Log and 1 to 60 cycles for High-Speed DR Log
- Up to 16 Programmable Parameters for each DR Log with programmable sources
- Configurable Depth and Recording Offset
- Support FIFO or Stop-When-Full Recording Mode
- BEC 2018 Compliant Data Recording for 3 years at 15-minute interval

PQ Log

- 512 entries time-stamped to ±1ms resolution
- Dips/Swells/Interruptions and Transients detection

Max./Min. Log

- Logging of Max./Min. values for Measurements such as Voltage, Current, Frequency, P, Q, S, PF, Unbalance, K-Factor and THD with Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)

SOE Log

- 512 events time-stamped to ±1ms resolution
- Setup changes, Setpoint events and I/O operations

Inputs and Outputs**Digital Inputs**

- 6 channels, volt free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information
- Demand Synchronization
- Tariff switching based on DI status

Digital Outputs

- Up to 3 channels Form A Mechanical Relays for alarming and control
- 5A @250VAC/30VDC

Analog Input (Optional)

- Optional 1xAI, 0/4-20mA DC input with programmable zero and full scales
- Can be used to measure external transducer signal such as Residual or Leakage Current

Communications**RS-485 (P1)**

- Optically isolated RS-485 ports
- Baud rate from 1,200 to 38,400bps
- Modbus RTU, Ethernet Gateway and Modbus Master
- Supports up to 31 downstream Modbus Slave Devices

Ethernet (P2)

- 10/100BaseT Ethernet Port with RJ45 connector
- Built-in Web Server for easy data viewing, setup configuration and firmware upgrade
- Modbus TCP, HTTPS, SMTPS, SNTP, FTPS, SNMP, BACnet/IP, IEC61850

Setpoints

- 16 Standard (1s) and 8 High-Speed (1 cycle) Setpoints
- Extensive monitoring sources including U, I, P, Q, S, PF, Current Demands, THD, Unbalance, Sequence Components, Phase Loss/Reversal, etc.
- Configurable thresholds and time delays
- 6 Logical Modules supporting AND/OR/NAND/NOR operations
- SOE, WFR, DWR, Data Recorder, DO and Email Alarm Trigger

Power Quality Metering

IEC61000-4-30 Ed.3 Class S Compliance and EN50160 Report

- Waveform Recording (WFR&DWR) in COMTRADE format
- Fundamental U, I, I4, P, Q, S and Displacement PF
- Voltage and Current Unbalance and Symmetrical Components
- Voltage and Frequency Deviation
- THD, TOHD, TEHD, Crest Factor, K-Factor and TDD
- Individual harmonics up to 63rd
- Dips/Swells/Interruptions Detection and Transients Capture
- Disturbance Direction Indicator

Disturbance Waveform Recorder (DWR)

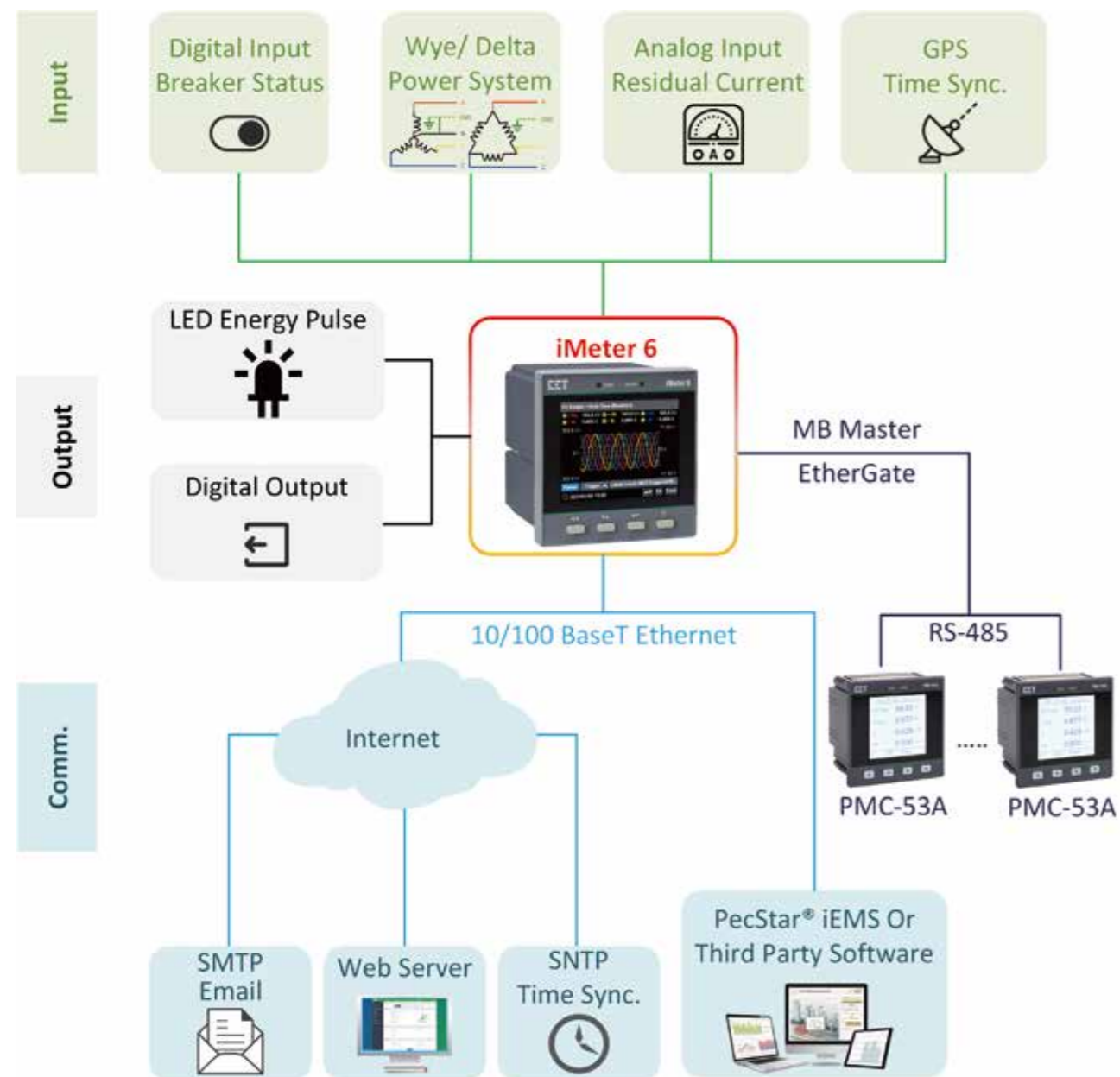
- 128 entries
- Simultaneous recording of 3-phase Voltage and Current Inputs

- Initial Fault: 35 cycles @ 256 samples/cycle
- Extended Fault: Up to 150 cycles @ 16 samples/cycle
- Steady State: Up to 360 seconds of 1-cycle absolute peak values
- Post Fault: 15 cycles @ 256 samples/cycle

Real-Time Waveform Capture (WFC) and Waveform Recorder (WFR)

- Real-time WFC @128 samples/cycle x 4 cycles, Event Waveforms and ITIC/SEMI F47 Curves via Front Panel and Web Interface
- WFR with 128 entries
- Simultaneous capture of 3-phase Voltage and Current
- Programmable formats and pre-fault cycles from 256x20 to 16x320
- Support FIFO Recording Mode
- Scheduled WFR with max. repetition of 10000 times and programmable schedule from 1 to 960 hours
- COMTRADE file format, downloadable from the on-board Web/FTP Server

Typical Application



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.1%	0.001V
Current	±0.1%	0.001A
I4 Measured	±0.1%	0.001A
P, Q, S	±0.2%	0.001k
kWh, kVAh	IEC 62053-22 Class 0.2S, ANSI C12.20 Class 0.2	0.1kXh
kvarh	IEC 62053-24 Class 0.5S, IEC 62053-23 Class 2	0.1kvarh
PF	±0.2%	0.001
Frequency	±0.01Hz	0.01Hz
Harmonics	IEC 61000-4-7 Class I	0.01%
K-Factor	IEC 61000-4-7 Class I	0.01
Phase Angle	±1°	0.1°
U Deviation	±0.5%	0.01%
Freq. Deviation	±0.01Hz	0.01Hz
U Unbalance	±0.2%	0.1%
I Unbalance	±1.0%	0.1%
AI	±0.5%	-

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Standard Un		400ULN/690ULL +20%
Range		4V to 120%Un
PT Ratio	Primary	1 to 1,000,000
	Secondary	1 to 1,500
Overload		1.2xUn continuous, 2xUn for 10s
Burden		<0.5VA @ 240V
Measurement Category		CAT III 600V
Frequency		42-69Hz

Current Inputs (-I11, I12, -I21, I22, -I31, I32, -I41, I42)

Standard (In/Imax)		5A/10A
Optional (In/Imax)		1A/2A
Range		0.1% to 200% In
CT Ratio	Primary	1 to 30,000
	Secondary	1 to 50
Overload		2xIn continuous, 4xIn for 60s, 10xIn for 10s, 20xIn for 1s
Burden		<0.25VA @ 5A

Power Supply (L+, N-)

Standard	95-277VAC L-N/415VAC L-L, 45-65Hz 90-300VDC
Optional	20-60VDC
Burden	<10VA/6W @ 240VAC/DC, <3.6W @24VDC

Digital Inputs (DI1, DI2, DI3, DI4, DI5, DI6, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1-1,000ms programmable

Digital Outputs (DO11, DO12, DO21, DO22, DO31, DO32)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC/30VDC

LED Pulse Outputs (kWh, kvarh)

Type	Optical
Pulse Constant	1000/3200/5000/6400/12800 imp/kXh

Accuracy Parameters

		Accuracy	Resolution
Voltage		±0.2%	0.001V
Current		±0.2%	0.001A
I4 (measurement)		±0.2%	0.001A
Ir (measurement)		±0.5%	0.001A
P, Q, S		±0.5%	0.001kX
kWh, kVAh	5A/1A Option	IEC 62053-22 Class 0.5S ANSI C12.20 Class 0.2	0.1kXh
	SCCT Option	IEC 62053-21 Class 1	
kvarh	5A/1A Option	IEC 62053-24 Class 0.5S IEC 62053-23 Class 2	0.1kvarh
	SCCT Option	IEC 62053-24 Class 1 IEC 62053-23 Class 2	
PF		±0.5%	0.001
Frequency		±0.02Hz	0.01Hz
THD		IEC 61000-4-7 Class B	0.001%
K-Factor		IEC 61000-4-7 Class B	0.001
Phase Angle		±1°	0.1°

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Standard Un	400ULN/690ULL
Range	10V to 1.2Un
Overload	1.2xUn continuous, 2xUn for 1s
Burden	<0.02VA per phase
Measurement Category	CAT III up to 600ULL
Frequency	45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

Standard In	Standard 5A, Optional 1A
SCCT Options	100A/200A/400A/800A/1600A to 40mA Output
Range	0.1% to 200% In
Starting Current	0.1% In
Overload	2xIn continuous, 20xIn for 1s
Measurement Category	CAT III up to 600ULL
Burden	<0.15VA per phase @ 5A

Power Supply (L+, N-)

Standard	95-250VAC/DC, ±10%, 47-440Hz
Optional	20-60VDC
Burden	<3W
Overvoltage Category	CAT III up to 300ULN

Digital Inputs (DI1, DI2, DI3, DI4, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Digital Outputs (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC

Optional SS Pulse Outputs (E1+, E1-, E2+, E2-)

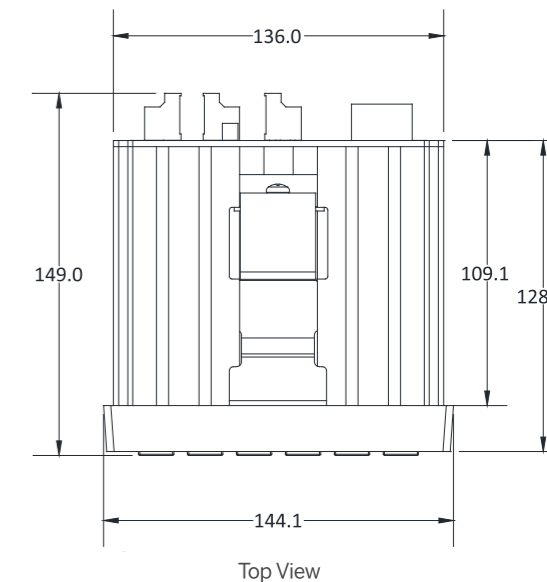
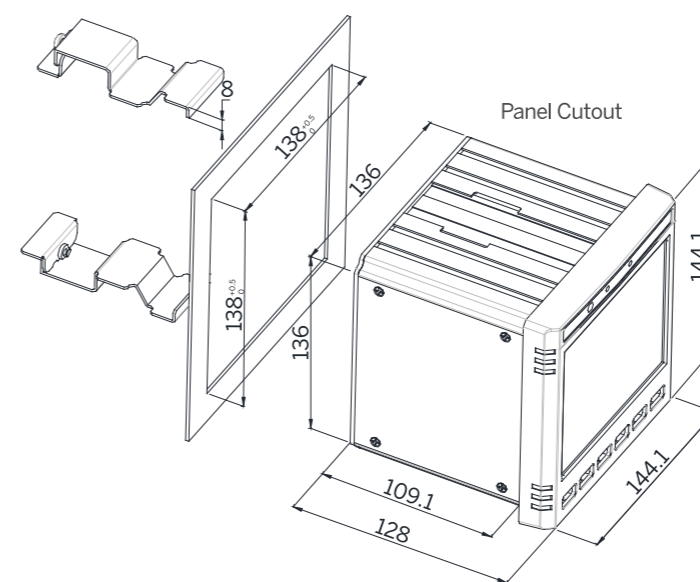
Type	Form A Solid State Relay
Isolation	Optical
Maximum Load Voltage	50VDC
Maximum Forward Current	50mA

Optional Analog Input (AI+, AI-)

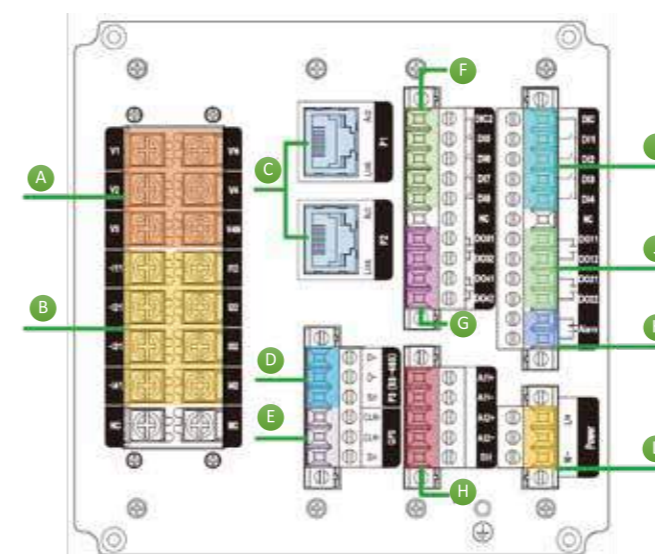
Type	0-20/4-20 mA
Overload	24 mA maximum

Device View and Dimensions

Unit: mm

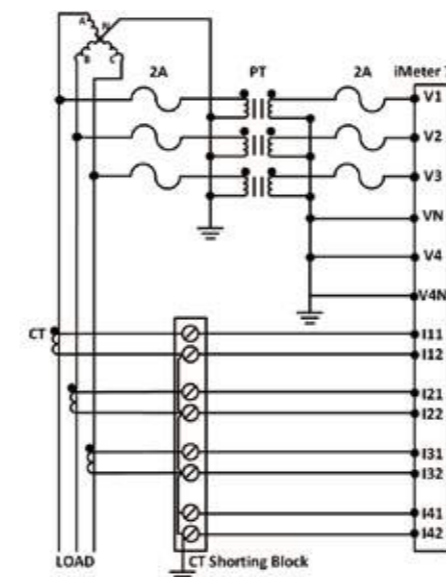


iMeter 7A

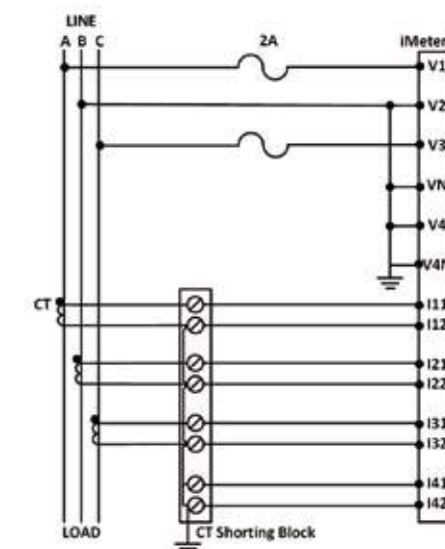


- A Voltage Inputs
- B Current Inputs
- C 10/100BaseT Ethernet Ports
- D RS-485 Port
- E GPS Input
- F Optional Digital Inputs
- G Optional Digital Outputs
- H Optional Analog Inputs
- I Standard Digital Inputs
- J Standard Digital Outputs
- K Alarm Output
- L Power Supply

Wiring Diagrams



3-Wire Grounded Wye, 3PTs, 3CTs



3-Wire Grounded Delta, no PTs, 4CTs

iMeter 8

Advanced Power Quality Monitor



- ✓ 8GB On-board Memory
- ✓ IEC 62053-22 Class 0.2S kWh metering
- ✓ DIN form factor measuring @ 192x192x182.4 mm
- ✓ 7" High-Resolution Color Dot-Matrix Display @ 800x480
- ✓ Dual 100BaseT Ethernet and two RS-485 Ports
- ✓ IEC 61000-4-30 Ed.3.1 Class A Certified
- ✓ Conducted Emissions in 2-150kHz Range
- ✓ EN 50160 & IEC61850, IEEE Sta 519-2022

Features Summary

General

Class (kWh)	0.2S
Dimensions (mm)	192(W)x192(H)x182.4(D)
Display (Backlit)	Color TFT 800x480 (Backlit)
True RMS Sampling Rate	1024
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, Modbus TCP, HTTPS, SNMP, SMTPS, FTP, Ethernet Gateway, IEC61850, IEEE1588 (PTP)
RS-485 Port	2
Ethernet	2
Web Server	✓

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 63 rd
Voltage/Current Unbalance	✓
Waveform Capture on Screen	✓
Waveform Recording	✓
Dip Swell Detection	✓
Transient Detection	✓
IEC 61000-4-30 Ed.3.1 Class A Certified	
2-150kHz Conducted Emission	Compliant

I/O

Digital Input (DI)	8 (16 Opt.)
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	4DO+4SS (Opt. 8DO+4SS or 4DO+2SS)
Analog Input (AI), 0/4-20mA	(2 Opt.)
Analog Output (AO), 0/4-20mA	(1 or 2 Opt.)
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	4 (2 Opt.)
IRIG-B (GPS)	✓

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

Basic Measurements

- ULN, ULL per Phase and Average with Neutral-to-Ground Voltage (Ung)
- Current per Phase and Average with calculated Neutral
- P, Q, S, PF per Phase and Total
- kWh, kvarh Import/ Export/Net/Total and kVAh Total
- Frequency
- Device Operating Time (Running Hours)
- Optional Neutral Current I4 measurement
- Optional Residual Current Ir measurement

Advanced Measurements

- 1-cycle Real-time U & I Waveform Display @ 1s update rate
- U and I THD, TOHD, TEHD and Individual Harmonics up to 31st
- Current TDD, TDD Odd, TDD Even, K-Factor and Crest Factor
- U and I Unbalance and Phase Angle
- Displacement PF
- Fundamental U, I and P per Phase
- Total Fundamental P & Total Harmonic P
- U and I Symmetrical Components
- kvarh Q1-Q4
- Interval Energy for kWh/kvarh Import/Export and kVAh

Demands

- Present, Predicted and Maximum Demands for ULN, ULL, I per Phase and Average as well as P/Q/S Total with Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)

Multi-Tariff TOU Capability

- Two TOU schedules, each providing:
 - 12 Seasons
 - 20 Daily Profiles, each with 12 Periods in 15-minute interval
 - 90 Holidays or Alternate Days
 - 8 Tariffs

Data and Event Recorders

Max./Min. Log

- Max./Min. Log with Timestamp for Real-time Measurement such as Voltage, Current, In, I4, Ir, Freq., kW, kvar, kVA, PF, Unbalance, K-Factor, Crest Factor and THD
- Configurable for This Month & Last Month (or Since Last Reset & Before Last Reset)

Freeze Log

- 60 Daily Freeze Logs for kWh/kvarh/kVAh Total and kW/kvar/kVA Maximum Demands
- 36 Monthly Freeze Logs for kWh/kvarh/kVAh Total and kW/kvar/kVA Maximum Demands with Timestamps

Data Recorder

- 5 Data Recorders of 16 parameters each for Real-time Measurements, Harmonics, Energy, Demand, TOU, Pulse Counters, etc.
- Recording interval from 1 minute to 40 days
- Configurable capacity up to a max. of 1145 days at 15-minute interval for 1 Data Recorder with 16 parameters for HK BEC2018 Compliant Recording

SOE Log

- 100 events time-stamped to ±1ms resolution
- Setup changes, Setpoint, DI status changes and DO operations

Inputs and Outputs

Digital Inputs

- 4 channels, volt free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information
- Tariff switching based on DI status

Digital Outputs

- 2 Form A mechanical relays for alarming and general purpose control

Pulse Outputs (Optional)

- 2 Form A Solid State Relays for kWh and kvarh pulsing

Analog Inputs (Optional)

- I4 Current Input for Neutral Current Measurement
- Ir Input for Residual Current Measurement
- 0/4-20mA DC input with programmable zero and full scales

Communications

- One 100BaseT Ethernet Port, supporting Modbus TCP, HTTP, SMTP, SNMP and TFTP
- One optically isolated RS-485 port at maximum 38,400 bps, supporting selectable protocol for Modbus RTU, BACnet MS/TP, DNP 3.0 and Ethernet Gateway
- Built-in Web Server for data viewing and configurations

Setpoints

- 9 user programmable setpoints with extensive list of monitoring parameters including Voltage, Current, Power, PF, Current and Power Demand, Unbalance and THD, etc.
- Configurable thresholds, time delays, DO and Alarm Email triggers

PMC-53A-E

Ethernet Multifunction Meter



- ✓ Compliance with the IEC 62053-22 Class 0.5S Standard
- ✓ DIN form factor measuring @ 96x96x88 mm
- ✓ A large, backlit, Dot-Matrix LCD
- ✓ On-board password protected Web Server
- ✓ Optional Split-Core CT (SCCT)

Features Summary

General

Class (kWh)	0.5S
Dimensions (mm)	96(W)x96(H)x88(D)
Display (Backlit)	Dot-Matrix LCD (Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, Modbus TCP, BACnet MS/TP, DNP3.0, Ethernet Gateway, SNMP, SMTP, TFTP
RS-485 Port	1
Ethernet	1
Web Server	✓

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	✓
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

Logs

SOE Log	100 entries
PQ Log	-
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	8MB

I/O

Digital Input (DI)	4
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	2DO or (2 Opt.)SS
Analog Input (AI), 0/4-20mA	(1 Opt.)
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	(2 Opt.)
IRIG-B (GPS)	-

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

Basic Measurements (1-second update)

- 3-phase U, I, P, Q, S and PF as well as U4, I4 and I5
- kWh, kvarh Import/Export/Net/Total and kVAh Total
- Frequency

High-Speed Measurements

- 3-phase U, I, P, Q, S and PF as well as U4, I4 and I5 @ ½ cycle
- Frequency @ 1 cycle

Demands

- Present and Predicted Demand for 3-phase U, I, P, Q, S and PF as well as U4, I4, I5, Frequency
- Present Demand of 4-phase U & I THD/TOHD/TEHD, 4-phase Current K-Factor, U/I Unbalance, Over & Under Deviation of Voltage and Frequency, 4-phase Fundamental Current
- Max./Min. values per Demand Interval
- Maximum Demands for This Month & Last Month (or Since Last Reset & Before Last Reset)
- Demand Synchronization with DI

Multi-Tariff TOU Capability

- Two independent sets of TOU Schedules, each supporting
 - Up to 12 Seasons
 - 90 Holidays or Alternate Days and 3 Weekdays
 - 20 Daily Profiles, each with 12 Periods in 15-minute intervals
 - 8 Tariffs, each providing the following information:
 - kWh/kvarh Import/Export and kVAh
 - P & Q Import/Export Maximum Demands with timestamp
 - Register rollover at 100,000,000,000.000 kXh
- Switching between two TOU schedules manually or according to pre-programmed time
- 12 Historical Logs for Energy and Maximum Demand

Data and Event Recorders

- 8GB on-board non-volatile Log Memory

Data Recorder (DR)

- 8 DR Logs capable of recording up to 64 parameters each
- Recording Interval from 1s to 40 days
- Programmable sources such as RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Deviations, MSV, Unbalances and Flicker
- Configurable Recording Offset
- Support FIFO or Stop-When-Full recording modes

Interval Energy Recorder (IER) and Accumulative Energy Recorder (AER)

- Both IER and AER support recording of Total RMS kWh, kvarh Import/Export/Total/Net and kVAh, Total Fundamental and Total Harmonic kWh, kvarh Import/Export
- Recording interval from 1 minute to 65535 minutes
- Maximum Recording Depth @ 65535 records
- Support FIFO and Stop-When-Full modes

Statistical Data Recorder (SDR)

- 16 SDR Logs of maximum 64 parameters each
- Recording of the Max., Min., Avg. and CP95 for Real-time Measurements including U, I, P, Q, S, PF, Freq., Power, PF, Harmonics, Deviations and Unbalances
- Recording interval from 0 minute to 60 minutes
- 30 days @ 1-minute, 300 days @ 10-minute, 450-day @ 15-minute
- PQDIF file format, downloadable from the on-board FTP Server
- Support FIFO or Stop-When-Full mode

Max./Min. Recorder (MMR)

- 4 Max./Min. Recorders of 20 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Deviations, Unbalances and Flicker
- Two transfer modes:
 - Manual: Max./Min. Since Last Reset & Before Last Reset
 - Auto: Max./Min. of This Month & Last Month

SOE Log

- 1024 FIFO events time-stamped to ±1ms resolution
- Setpoint events, I/O operations, Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Current, Mains Signaling Voltages, Motor Start, iTrigger, etc.
- Record the time and characteristic data for Setpoints and PQ events

Device Log

- 1024 FIFO entries time-stamped to ±1ms resolution
- Power On/Off Records, Setup changes, Time Sync., Device Operations and Self-diagnostics

Audit Logs

- Display of Log In/Out events, View/Export/Clear Audit Logs on the Web Interface for Auditor Account
- Store up to 2048 Audit Logs in non-volatile memory
- Support FIFO or Stop-When-Full recording modes

iTrigger

- Cross trigger DO, SOE Log, WFR, DWR, RMSR and Alarm Email with other iMeter devices within the same local area network (LAN)
- Programmable via Web Interface or Communications

IEEE Std 519-2022 Report

- 365 Daily Reports for statistical evaluations on Voltage and Current Harmonics based on 99th percentile very short time (3s) values
- 52 Weekly Reports for statistical evaluations on Voltage Harmonics (95th percentile) and Current Harmonics (95th and 99th percentile) short time (10 min) values
- Configurable Report Mode, PCC Voltage, Max. Short Circuit Current, etc.

iTrigger

- Ability to cross-trigger WFR, DWR, RMSR and DO between iTrigger-enabled devices over a network connection
- Programmable via Web Interface or Communications

Inputs and Outputs

Digital Inputs

- Standard 8 or optional 16 channels
- Standard volt free dry contact with 24VDC Internal Excitation
- Optional 110VAC/DC or 220VAC/DC External Excitation
- 1000Hz sampling for external status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information
- Demand Synchronization and Tariff Switch based on DI Status

Digital Outputs

- Standard 3 or optional 7 channels Form A and 1 channel Form C Mechanical Relays for general purpose control or alarming
- Optional 2 or 4 SS Relays for Energy pulsing applications

Analog Inputs (Optional)

- Two channels 0/4-20mA DC input with programmable zero and full scales that can be used to measure external transducer signal

Analog Output (Optional)

- One or two channels 0/4-20mA DC output with programmable zero and full scales

Communications

Ethernet Ports (P1, P2)

- Dual 10/100BaseT Ethernet Ports with RJ45 connector
- Protocols supported: Modbus TCP, HTTPS, SNMP, SMTPS, FTP and IEC61850
- Built-in password protected Web Server with multiple user accounts and pre-defined roles for easy data viewing, setup configuration and firmware upgrade
- Simultaneous client connections for 12xModbus TCP & 12xIEC61850

RS-485

- Dual optically isolated RS-485 port with baud rate from 1.2 to 38.4 kbps
- Support Modbus RTU and Ethernet Gateway

Setpoints

PQ Setpoints

- Transients, Dips, Swells, Interruptions, ITIC Alarm and SEMI F47 Alarm
- Rapid Voltage Changes
- Inrush Current
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Control Setpoints

- 256 standard and 16 High-Speed Setpoints
- Extensive monitoring sources including U, I, P, Q, S, Demand, Harmonics, Unbalances, Deviations, Flickers, Phase Reversal/Loss, AI, etc.
- Configurable thresholds and time delays
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Motor Start Setpoints

- Monitoring motor startup procedure with recording of Max. Starting Current, Minimum Voltage and Duration
- Trigger DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Digital Input Setpoints

- Provides control output actions in response to changes in Digital Input status
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Power Quality Metering

IEC 61000-4-30 Ed.3.1 Class A Certified

- Power Frequency
- Magnitude of the Supply Voltage and Current
- Flicker
- Supply Voltage Dips, Swells and Interruptions
- Supply Voltage Unbalance and Current Unbalance
- Mains Signaling Voltage on the Supply Voltage
- Rapid Voltage Changes
- Measurement of Over Deviation and Under Deviation Parameters
- Harmonics and Interharmonics for Voltage and Current
- 2kHz to 150kHz Conducted Emission Measurements

Harmonic and Interharmonic Measurements

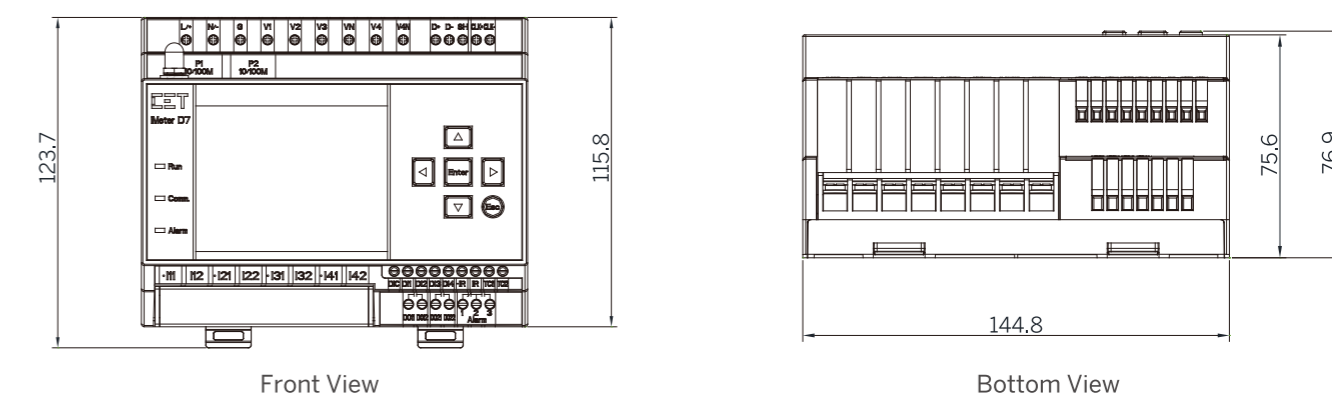
- K-Factor for Current, Crest Factor for Current and Voltage
- U and I THD, TOHD, TEHD, TIHD, TOIHD, TEIHD and TH (RMS)
- U and I Individual Harmonics (%HD and RMS) from 2nd to 63rd #
- U and I Individual Interharmonics (%IHD and RMS) from 1st to 63rd #
- Total Harmonic P, Q, S and PF
- Harmonic P, Q, S and PF from 2nd to 63rd in RMS
- Harmonic Phase Angle from 2nd to 63rd #
- U and I DC Components
- Total Harmonic kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export from 2nd to 63rd # %HD and %IHD can be configured as % of Fundamental, % of U/I nominal or % of RMS

Conducted Emissions in the 2kHz to 150kHz Range

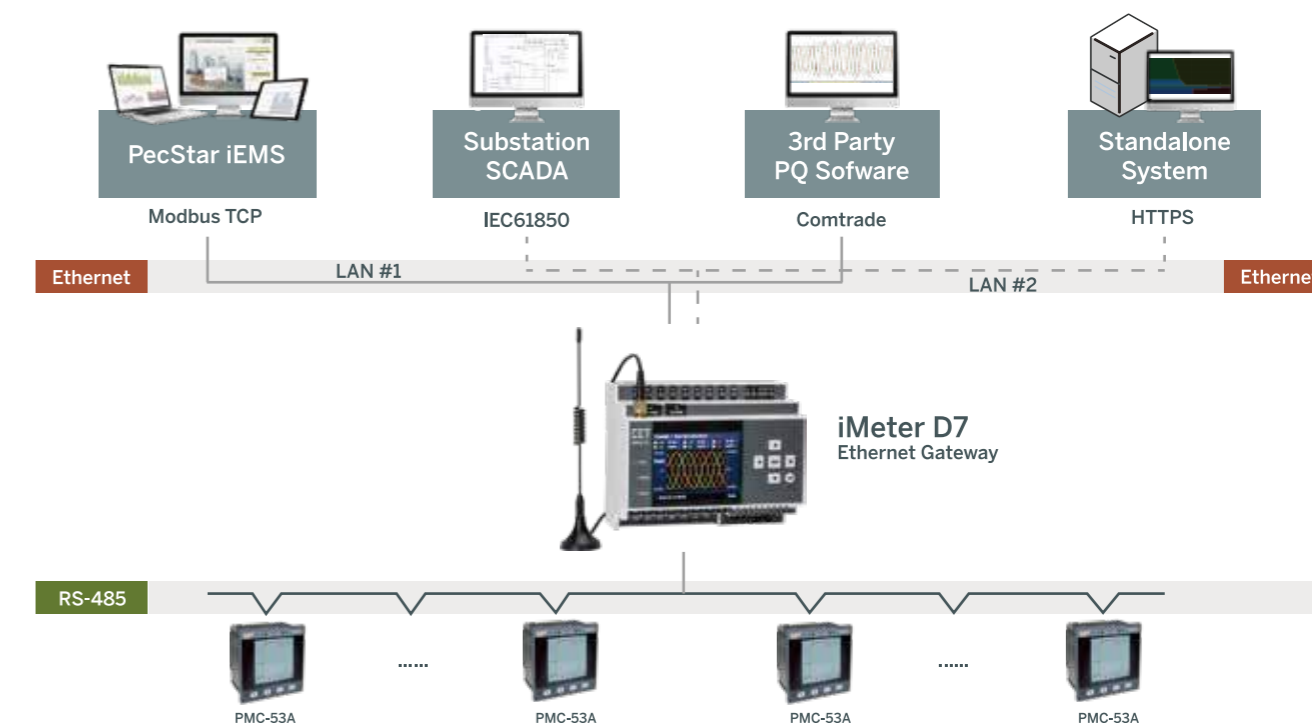
- Real-time amplitude (150/180-Cycle) and the Max., Min., Avg. and CP95 (in 1-minute interval) for a total of 106 frequency segments for the 2kHz-9kHz (U_{rms} and I_{rms}) and 9kHz-150kHz (U_{rms}) range
- Daily Heat Map display on the Web Interface for the Max., Min., Avg. and 95th percentile values

Device View and Dimensions

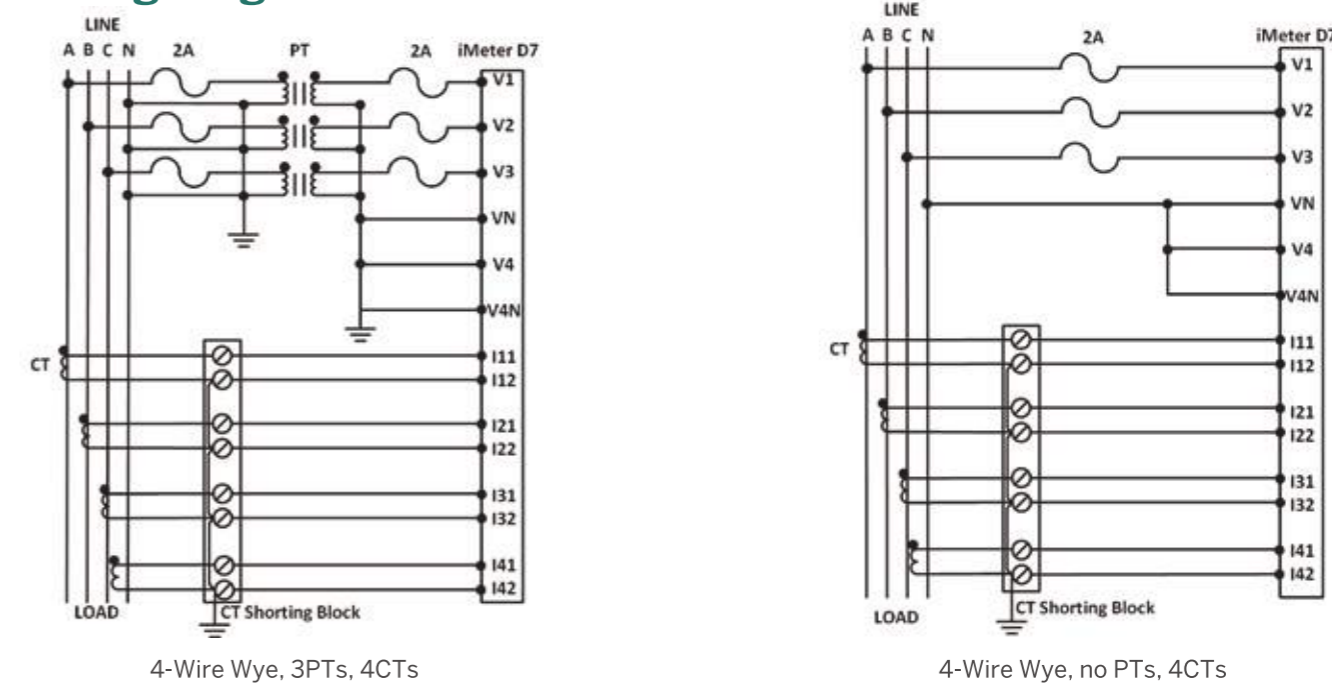
Unit: mm



Typical Application



Wiring Diagrams



Ordering Information

Product Code											Description
iMeter D7 DIN Rail Advanced Power Quality Analyzer											
Basic Function	A										IEC 61000-4-30 Ed.3 Class A Certified with 2kHz-9kHz C.E. Measurements
	B*										IEC 61000-4-30 Ed.3 Class A Certified with 2kHz-150kHz C.E. Measurements
Input Current	5										5A
	1										1A
	SCCT										For use with 100A/200A/400A/800A/1600A to 40mA SCCTs (SCCTs not included)
	SCCTA										2mA Input for use with 5A/2mA SCCT (SCCTs not included)
	SCCPA^										SCCP Option for use with CT Clamps with Max. 500mV Output
Input Voltage	9										400ULN/690ULL+20%
Power Supply	2										95-250VAC/DC ±10%, 47-440Hz
	3										20-60VDC
System Frequency	5										50Hz
	6										60Hz
I/O	A										4xDI + 3xDO (Mechanical Relay)
	B										4xDI + 3xSS Pulse Outputs
Analog Inputs	X										None
	A*										2xAI
	B*										1xIr + 1xRTD
Communications	A										2x100BaseT + 1xRS-485
	B*										2x100BaseT + 1xRS-485 + 4G
Display Language	E										English
iMeter D7	-	A	5	9	2	5	A	X	A	E	iMeter D7-A5925AXAE (Standard Model)

* Additional charges apply
 ^ SCCPA option does not come with any Current Clamp. Please refer to the "Optional SCCPs" section for more information

Optional SCCPs

Model No.	PMC-SCCP-50A-500mV-B-A-B	PMC-SCCP-200A-200mV-B-B-B	PMC-SCCP-500A-500mV-B-B-B	* PMC-SCCP-5kA-500mV-B-C-C-371/254/150/100
Measurement Range	5A (50A I _{max})	20A/200A (200A I _{max})	500A (500A I _{max})	500A/5000A Rogowski Coil (5000A I _{max})
Max. Allowable Current	50A	260A	500A	10,000A
Output Voltage	AC 10mV/A (Maximum 500mV)	AC 10mV/A @ 20A AC 1mV/A @ 200A (Maximum 200mV)	AC 1mV/A (Maximum 500mV)	AC 1mV/A @ 500A AC 0.1mV/A @ 5000A (Maximum 500mV)
Accuracy	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.02% f.s.	±2.0% rdg. (1% - 200%) I _n
Protection	CAT III 300V	CAT III 600V	CAT III 600V	CAT III 1000V CAT IV 600V
Diameter	15mm	24mm	50mm	371/254/150/100 (mm)
Cable Length	3m	3m	3m	3m
Termination	BNC	BNC	BNC	BNC

* The Rogowski Coil SCCP comes with an external Universal Power Supply and an integrator

Sequence and Unbalance

- Zero, Positive and Negative Sequence Components
- U and I Unbalance based on Zero and Negative Sequence Components

Dips, Swells, Interruptions Recording

- Dips, Swells & Interruptions detection @ 10ms (½ cycle at 50Hz)
- Trigger for DO, SOE Log, DR, WFR, DWR, RMSR, iTrigger and Alarm Email
- Display of Event specific WFR, DWR and/or RMSR as well as the associated ITIC/SEMI F47 plot on the Front Panel and Web Interface
- ITIC/SEMI F47 Alarm trigger for DO and iTrigger upon the detection of Dips, Swells and Interruptions that are outside of the respective tolerance curves

Transients Recording

- Transients capture as short as 20us @ 50Hz or 16.67us @ 60Hz at 1024 samples for sub-cycle disturbance such as capacitor switching and resonance phenomena
- Display of Event specific WFR, DWR and/or RMSR on the Front Panel and Web Interface

Rapid Voltage Changes (RVC)

- Detection of a quick transition in RMS voltage between two steady-state Voltage conditions

Inrush Current Monitoring

- Monitoring of the ½ cycle RMS Current and capturing of the Current waveforms associated with events such as motor starting and transformer being energized

Disturbance Direction Indicator

- Determine if a Dip/Swell/Interruption Event is located upstream or downstream
- Pinpoint if the cause of the event is external or internal

PQ Event Counters

- Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Current, Mains Signalling Voltages and Total PQ Event Counters



Real-Time Waveform Capture (WFC) and Waveform Recorder (WFR)

- Real-time WFC @ 128 samples/cyclex4 cycles via Front Panel and Web Interface
- WFR with maximum 128 entries
- Simultaneous capture of 4-phase Voltage and Current Inputs
- No. of Cycles x Samples/Cycles with programmable pre-fault cycles: (40-400)x1024, (40-800)x512, (40-1600)x256, (40-3200)x128
- Scheduled WFR with maximum repetition of 10,000 times and programmable schedule from 1 to 1440 mins
- COMTRADE file format, downloadable from the on-board Web Server or FTP Server

Disturbance Waveform Recorder (DWR)

- 128 entries
- Simultaneous recording of all Voltage (U1-U4) and Current (I1-I4) Inputs
 - Initial Fault: 35 cycles @ 512 samples/cycle
 - Extended Fault: Up to 150 cycles @ 16 samples/cycle
 - Steady State: Up to 360s of 1-cycle absolute peak values
 - Post Fault: 15 cycles @ 512 samples/cycle

RMS Recorder (RMSR)

- 128 entries
- 16 parameters max., selectable U, I, P, Q, S, PF, Freq., Freq. Deviation
- Recording Interval from 0.5 to 60 cycles
- Recording Depth @ 7200 samples per parameter
- Configurable pre-fault samples from 100 to 500
- 72 seconds of ½ cycle RMS Recording @ 50Hz or 60 seconds @ 60Hz
- Display of U & I RMSR triggered by events on the Web Interface



Accuracy

Parameters	Accuracy	Resolution
Voltage (U)	±0.1%	0.001V
I1, I2, I3	±0.1%	0.001A
	SCCPA Option: ±0.1% + Error of SCCP	
I4	±0.1%	0.001kX
I5	±0.5%	
P, Q, S	±0.2%	0.001kX
	SCCPA Option: ±0.5%	
kWh, kVAh	IEC 62053-22 Class 0.2S	0.1kXh
	SCCPA Option: IEC 62053-21 Class 1	
kvarh	IEC 62053-24 Class 0.5S, IEC 62053-23 Class 2	0.1kvarh
	SCCPA Option: IEC 62053-24 Class 1	
PF	±0.2%	0.001
	SCCPA Option: ±0.5%	
Frequency	±0.003Hz	0.001Hz
Harmonics	IEC 61000-4-7 Class I	0.001
Phase Angle	±0.2	0.1°
	SCCPA Option: ±0.2 + Phase Error of SCCP	
U Unbalance	±0.1%	0.01%
I Unbalance	±0.5%	0.01%
Pst, Plt	IEC 61000-4-15 Class F1	0.01%

Technical Specifications

Voltage Inputs (V1, V2, V3, VN, V4, V4N)

Standard (Un)	400ULN/690ULL +20%	
Range	1% to 200% Un for 400ULN nominal	
Overload	2xUn continuous, 4xUn for 1s	
Burden	< 0.5VA/per phase	
PT Ratio	Primary	1-1,000,000V
	Secondary	1-1,500V
	V4 Primary	1-1,000,000V
	V4 Secondary	1-1,500V
Measurement Category	CAT III 1000V	
Frequency	40Hz-60Hz @ 50Hz, 48Hz-72Hz @ 60Hz	

Current Inputs (I11, I12, I21, I22, I31, I32, I41, I42, I51, I52)

Standard (In)	5A (Standard), 1A (Optional)	
Range	1% to 400% In	
Starting Current	0.1% In	
Overload	4xIn continuous, 20xIn for 1s	
Burden	< 0.5VA/per phase @ 5A	
	< 0.1VA/per phase @ 1A	
SCCP Options	SCCP-50A-500mV	5A/50A (In/Imax), maximum 500mV Output
	SCCP-200A-200mV	20A/200A (In/Imax), maximum 200mV Output
	SCCP-500A-500mV	500A Imax, maximum 500mV Output
	SCCP-5000A-500mV	Selectable 500A/5000A (Imax) Rogowski Coil, maximum 500mV Output
CT Ratio	Primary	1-30,000V
	Secondary	1-50A
	I4 Primary	1-30,000V
	I4 Secondary	1-50A

Current Inputs (I11, I12, I21, I22, I31, I32, I41, I42)

Standard (In)	5A (Standard), 1A (Optional)	
Range	0.1% to 400% In	
Starting Current	0.1% In	
Overload	4xIn continuous, 10xIn for 1s	
Burden	< 0.5VA/per phase @ 5A	
	< 0.1VA/per phase @ 1A	
CT Ratio	Primary	1-30,000A
	Secondary	1-50A
	I4 Primary	1-30,000A
	I4 Secondary	1-50A
SCCPA Options	Split-Core Current Probe Input @ 500mV (Options: 5/50A, 20/200A, 500A, 500/5000A)	
SCCT Options	Class 0.5 Split-Core CT Input @ 40mA (Options: 100A, 200A, 400A, 800A, 1600A)	
SCCTA Option	Class 1 Split-Core CT Input @ 2mA (Option: 5A only)	

Digital Outputs - Form A Relay (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC

Digital Outputs - Form C Relay (Alarm 1, 2, 3)

Type	Form C Mechanical Relay
Loading	8A @ 250VAC or 24VDC

Optional Pulse Outputs (E1+, E1-, E2+, E2-, E3+, E3-)

Type	Form A Solid State Relay
Isolation	Optical
Maximum Load Voltage	30VDC
Maximum Forward Current	100mA

Optional Analog Input (AI1+, AI1-, AI2+, AI2-)

Type	0-20/4-20 mA DC
Overload	24 mA maximum

Optional Residual Current Input (-IR, IR)

In	0.5mA
Range	2-200%In

Clock Input (CLK+, CLK-)

Type	GPS, IRIG-B
Accuracy	1ms

Optional RTD Temperature Inputs (TC11, TC12)

RTD Type	2-Wire PT100 (sensor not included)
Range	-40°C to +200°C
Accuracy	±1°C

Terminals Max. Torque

Current Inputs	1.0 N·m
Power Supply, Voltage Inputs, DI, DO, AI, IR, TC, CLK & RS-485	0.44 N·m

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	63 kPa to 110 kPa
Pollution Degree	2

Mechanical Characteristics

Panel Cutout	35 mm DIN Rail
Unit Dimensions	144.8×115.8×75.6 mm
IP Rating	30

Accuracy

Parameters	Accuracy	Resolution
Voltage (U)	±0.1%	0.001V
I1, I2, I3, I4	5A/1A	±0.1%
	SCCT/SCCTA	±0.1%+Error of SCCT
	SCCPA	±0.1%+Error of SCCP
P, Q, S	5A/1A	±0.2%
	SCCT/SCCTA	±0.5%
	SCCPA	±0.5%
kWh, kVAh	5A/1A	IEC 62053-22 Class 0.2S
	SCCT/SCCTA	IEC 62053-21 Class 1
	SCCPA	IEC 62053-21 Class 1
kvarh	5A/1A	IEC 62053-24 Class 0.5S IEC 62053-23 Class 2
	SCCT/SCCTA	IEC 62053-24 Class 1 IEC 62053-23 Class 2
	SCCPA	IEC 62053-24 Class 1 IEC 62053-23 Class 2
PF	5A/1A	±0.2%
	SCCT/SCCTA	±0.5%
	SCCPA	±0.5%
Fundamental Phase Angle	5A/1A	±0.2%
	SCCT/SCCTA	±0.2°+Phase Error of SCCT
	SCCPA	±0.2°+Phase Error of SCCP
Harmonics Phase Angle	5A/1A	±5°
	SCCT/SCCTA	±5°+Phase Error of SCCT
	SCCPA	±5°+Phase Error of SCCP
Freq., Freq. Dev.	±0.003Hz	0.001Hz
Harmonics	IEC 61000-4-7 Class I	0.01%
U Deviation	±0.1%	0.01%
U Unbalance	±0.1%	0.01%
I Unbalance	±0.5%	0.01%
Pst, Plt	IEC 61000-4-15 Class F1	0.001

Technical Specifications

Voltage Inputs (V1, V2, V3, VN, V4, V4N)

Standard (Un)	400ULN/690ULL+ 20%	
Range	5V to 2Un for 400VLN nominal	
Overload	2xUn continuous, 4xUn for 1s	
Burden	< 0.5VA/per phase @ 5A	
	< 0.1VA/per phase @ 1A	
PT Ratio	Primary	1-1,000,000V
	Secondary	1-1,500V
	V4 Primary	1-1,000,000V
	V4 Secondary	1-1,500V
Measurement Category	CAT III 600V	
Frequency	40Hz-60Hz @ 50Hz, 48Hz-72Hz @ 60Hz	

Power Supply (L+, N-, G)

Standard	95-250VAC/VDC ±10%, 47-440Hz
Optional	20-60VDC
Burden	< 7VA / 10W @ 250VAC or 60VDC

Digital Inputs (DIC, DI1, DI2, DI3, DI4)

Standard	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Power Supply (L+, N-)

Standard	95-250VAC/VDC ±10%, 47-440Hz
Burden	< 12W
Overvoltage Category	OVCIII 300V

Digital Inputs (DIC, DI1 to DI8 or optional DI1 to DI16)

Standard	Dry contact, 24VDC internally wetted
Optional	110V/220V AC/DC externally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Digital Outputs-Form A Relay (DO1 to DO3 or optional DO1 to DO7)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC/30VDC

Digital Outputs-Form C Relay (Alarm 1, 2, 3)

Type	Form C Mechanical Relay
Loading	8A @ 250VAC/24VDC

Pulse Outputs (E1+, E1-, E2+, E2-, E3+, E3-, E4+, E4-)

Type	Form A Solid State Relay
Isolation	Optical
Maximum Load Voltage	30 VDC
Maximum Forward Current	4mA

Optional Analog Input (AI1+, AI1-, AI2+, AI2-)

Type	0-20/4-20 mA DC
Overload	24 mA maximum

Optional Analog Output (AO1+, AO1-, AO2+, AO2-)

Type	0-20/4-20 mA
Loading	500Ω maximum
Overload	24 mA maximum

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	63 kPa to 110 kPa
Pollution Degree	2

Mechanical Characteristics





Panel Cutout	186x186 mm
Unit Dimensions	192x192x182.4 mm
IP Rating	52

Ordering Information

Product Code	Description
iMeter 8 Advanced Power Quality Analyzer	
Basic Function	A 1024 samples/cycle, 8GB On-Board Memory, IEC 61000-4-30 Ed.3.1 Class A Certified
	B*~ 1024 samples/cycle, 8GB On-Board Memory, IEC 61000-4-30 Ed.3.1 Class A Certified with 2-150kHz C.E. Measurement
Input Current	5 5A
	1 1A
	SCCPA^ SCCP Option for use with CT Clamps with maximum 500mV output
Input Voltage	9 400ULN/690ULL+20%
Power Supply	2 95-250VAC/DC ±10%, 47-440Hz
	3*# 20-60VDC
System Frequency	5 50Hz
	6 60Hz
I/O	A 8xDI + 4xDO + 4xSS Pulse Outputs
	B*~ 8xDI + 4xDO + 2xAI + 1xAO + 4xSS Pulse Outputs
	C* 16xDI + 8xDO + 4xSS Pulse Outputs
	D*~ 8xDI + 4xDO + 2xAI + 2xAO + 2xSS Pulse Outputs
DI Excitation	N Dry Contact (@24VDC Self-Excitation)
	1# 110V AC/DC External Excitation
	2# 220V AC/DC External Excitation
Communications	A 2x100BaseT + 2xRS-485
Time Sync.	A GPS, IRIG-B
Display Language	E English
iMeter 8	- A 5 9 2 5 A N A A E iMeter 8-A5925ANAAE (Standard Model)

* Additional charges apply
 ~ The I/O options "B" and "D" are not supported when the Basic Feature option "B" is selected.
 ^ The SCCPA option is compatible with the SCCP models listed in the "SCCP Option". This option does not come with any Current Clamp. Please refer to the "SCCP Option" sheet for more information and order the desired model and quantity as a separate item
 # The DI Excitation options "1" and "2" are not supported when the Power Supply option "3" with 20-60VDC is selected

Optional SCCPs

				
Model No.	PMC-SCCP-50A-500mV-B-A-B	PMC-SCCP-200A-200mV-B-B-B	PMC-SCCP-500A-500mV-B-B-B	* PMC-SCCP-5kA-500mV-B-C-C-371/254/150/100
Measurement Range	5A (50A I _{max})	20A/200A (200A I _{max})	500A (500A I _{max})	500A/5000A Rogowski Coil (5000A I _{max})
Max. Allowable Current	50A	260A	500A	10,000A
Output Voltage	AC 10mV/A (Maximum 500mV)	AC 10mV/A @ 20A AC 1mV/A @ 200A (Maximum 200mV)	AC 1mV/A (Maximum 500mV)	AC 1mV/A @ 500A AC 0.1mV/A @ 5000A (Maximum 500mV)
Accuracy	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.02% f.s.	±0.3% rdg. ±0.02% f.s.	±2.0% rdg. (1% - 200%) I _n
Protection	CAT III 300V	CAT III 600V	CAT III 600V	CAT III 1000V CAT IV 600V
Diameter	15mm	24mm	50mm	371/254/150/100 (mm)
Cable Length	3m	3m	3m	3m
Termination	BNC	BNC	BNC	BNC

* The Rogowski Coil SCCP comes with an external Universal Power Supply and an integrator

Conducted Emissions in the 2kHz to 150kHz Range

- Real-time amplitude (150/180-cycle) and the Max., Min., Avg. and 95th percentile values (in 1-min interval) for Voltage channels with a total of 106 frequency segments (2kHz - 150kHz range) and Current channels with a total of 35 frequency segments (2kHz - 9kHz range)
- Daily Heat Map display on the Web Interface for the Max., Min., Avg. and 95th percentile values

Dips, Swells, Interruptions Recording

- Dips, Swells and Interruptions detection @ 10ms (½ cycle at 50Hz)
- Trigger for DO, SOE Log, DR, WFR, DWR, RMSR, iTrigger and Alarm Email
- Configurable DO trigger for the Start or End of a PQ disturbance
- Display of Event specific WFR, DWR and/or RMSR as well as the associated ITIC/SEMI F47 plot on the Front Panel and Web Interface
- ITIC/SEMI F47 Alarm trigger for DO and iTrigger upon the detection of PQ Disturbances that are outside of the respective tolerance curves

Transients Recording

- Transients capture as short as 20us @ 50Hz or 16.67us @ 60Hz at 1024 samples for sub-cycle disturbances such as capacitor switching and resonance phenomena
- Trigger for DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email
- Display of Event specific WFR, DWR and/or RMSR on the Front Panel and Web Interface

Rapid Voltage Changes (RVC)

- Detection of a quick transition in RMS voltage between two steady-states

Inrush Current Monitoring

- Monitoring of the ½ cycle RMS Current and capturing of the Current waveforms associated with events such as motor starting and transformer being energized

Disturbance Direction Indicator

- Determine if a Dip/Swell/Interruption Event is located upstream or downstream
- Pinpoint if the cause of the event is external or internal

PQ Event Counters

- Dips, Swells, Interruptions, Transients, Rapid Voltage Changes, Inrush Currents, Mains Signalling Voltages and Total PQ Event Counters

Real-Time Waveform Capture (WFC) and Waveform Recorder (WFR)

- Real-time WF Capture @ 128 samples/cycle x 4 cycles
- WFR with max. 128 entries
- Simultaneous capture of 4-phase Voltage and Current Inputs
- (Range of Cycles) x Samples/Cycles with programmable pre-fault and post-fault cycles: (40-400) x1024, (40-800) x512, (40-1600) x256, (40-3200) x128

- Scheduled WFR with max. repetition of 10,000 times and programmable schedule from 1 to 65535 min.
- COMTRADE file format, downloadable from the on-board Web Server or FTPS Server

Disturbance Waveform Recorder (DWR)

- 128 entries
- Simultaneous recording of all Voltage (U1-U4) and Current (I1-I4) Inputs
 - Initial Fault: 35 cycles @ 512 samples/cycle
 - Extended Fault: Up to 150 cycles @ 16 samples/cycle
 - Steady State: Up to 360s of 1-cycle absolute peak values
 - Post Fault: 15 cycles @ 512 samples/cycle

RMS Recorder (RMSR)

- 128 entries
- 16 channels max., selectable U, I, P, Q, S, PF, Frequency, Freq. Deviation
- Recording Interval from 0.5 to 60 cycles
- Recording Width @ 7200 samples per parameter
- Configurable pre-fault samples from 100 to 500
- 72 seconds of ½ cycle RMS recording @ 50Hz or 60 seconds @ 60Hz

iTrigger

- Cross trigger DO, SOE Log, WFR, DWR, RMSR and Alarm Email with other iMeter devices within the same local area network (LAN)
- Provides Group ID and MAC Address as the trigger source

IEEE Std 519-2022 Report

- 365 Daily Reports for statistical evaluations on Voltage and Current Harmonics based on 99th percentile very short time (3 s) values
- 52 Weekly Reports for statistical evaluations on Voltage Harmonics (95th percentile) and Current Harmonics (95th and 99th percentile) short time (10 min) values
- Programmable settings for Report Mode, PCC Voltage, Max. Short Circuit Current, etc.

Inputs and Outputs

Digital Inputs

- Standard 4 channels, volt free dry contact, 24VDC Internal Excitation
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information
- Demand Synchronization and Tariff Switching based on DI Status

Digital Outputs

- Standard 2 channels Form A and 1 channel Form C Mechanical Relays for general purpose control or alarming
- Optional 3 SS Relays for Energy pulsing applications

Analog Inputs (Optional)

- Optional 2xAI, 0/4-20mA DC input with programmable zero and full scales that can be used to measure external transducer signal
- Optional 1xResidual Input for Leakage Current & 1xRTD for Temperature Measurements (Residual Current Transducer and PT100 Sensor not included)

Communications

Ethernet Ports (P1, P2)

- Dual 10/100BaseT Ethernet Ports with RJ45 connector
- Selectable IP Addressing Mode – DHCP and Static
- White List for Client Access Control
- Protocols supported: Modbus TCP, HTTPS, NTP, SMTPS, SNMP, FTPS, MQTT, IPSecVPN and IEC61850
- Built-in password protected Web Server with multiple user accounts and pre-defined roles for easy data viewing, setup configuration and firmware upgrade
- Simultaneous client connections for 12xModbus TCP and 4xIEC61850

RS-485

- One optically isolated RS-485 port with baud rate from 1.2 to 38.4 kbps
- Support Modbus RTU and Ethernet Gateway

4G (Optional)

- Optionally equipped with Built-in 4G LTE CAT4 modem
- Frequency bands supported[#]:
 - 4G LTE: B1/B3/B5/B7/B8/B20/B28/B38/B40/B41
 - 3G DC-HSPA+/HSPA/UMTS: B1/B5/B8
 - 2G GSM: 900/1800 MHz

[#]Availability and supported provider vary by region

Setpoints

PQ Setpoints

- Transients, Dips, Swells, Interruptions, ITIC Alarm, SEMI F47 Alarm
- Rapid Voltage Changes, Inrush Current
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Motor Start Setpoint

- Monitoring motor startup procedure with recording of Max. Starting Current, Minimum Voltage and Duration
- Trigger DO, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Control Setpoints

- 64 Control Setpoints can be configured with extensive monitoring sources including U, I, P, Q, S, Demands, Harmonics, Unbalances, Deviations, Flickers, Phase Reversal/Loss, Ir and AI, etc.
- Configurable thresholds and time delays
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Digital Input Setpoints

- Provides Control Output Actions in response to DI status changes
- Trigger DO, DR, SOE Log, WFR, DWR, RMSR, iTrigger and Alarm Email

Power Quality Metering

IEC 61000-4-30 Ed.3 Class A Certified

- Power Frequency
- Magnitude of the Supply Voltage
- Flicker
- Supply Voltage Dips, Swells and Interruptions
- Supply Voltage Unbalance
- Voltage Harmonics and Interharmonics
- Mains Signalling Voltage on the Supply Voltage
- Rapid Voltage Changes
- Measurement of Over Deviation and Under Deviation Parameters
- Magnitude of Current
- Current Harmonics and Interharmonics
- Current Unbalance
- 2kHz to 150kHz Conducted Emission Measurements

Harmonic and Interharmonic Measurements

- K-Factor for Current, Crest Factor for Current and Voltage
- U and I THD, TOHD, TEHD, TIHD, TOIHD, TEIHD and TH (RMS)
- U and I Individual Harmonics (%HD and RMS) from 2nd to 63rd #
- U and I Individual Interharmonics (%IHD and RMS) from 1st to 63rd #
- Total Harmonic P, Q, S and PF
- Harmonic P, Q, S and PF from 2nd to 63rd in RMS
- Fundamental U, I, P, Q, S, Phase Angle and Displacement PF
- Harmonic Phase Angle from 2nd to 63rd
- U and I DC Components

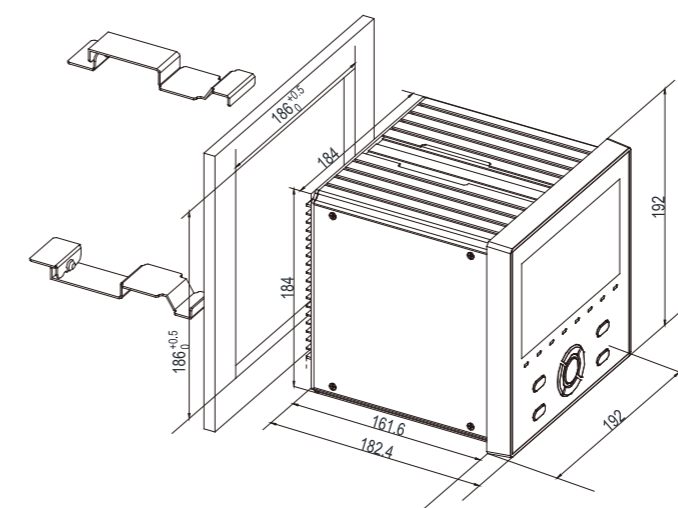
[#] %HD and %IHD can be configured as % of Fundamental, % of U/I nominal or % of RMS

Sequence and Unbalance

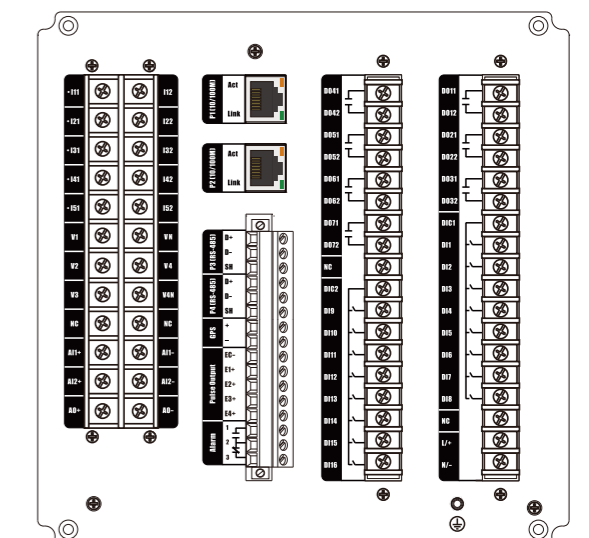
- Zero, Positive and Negative Sequence Components
- U and I Unbalance based on Zero and Negative Sequence Components

Device View and Dimensions

Unit: mm



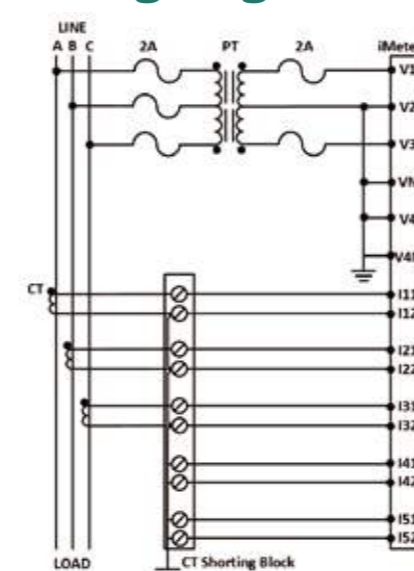
Panel Cutout



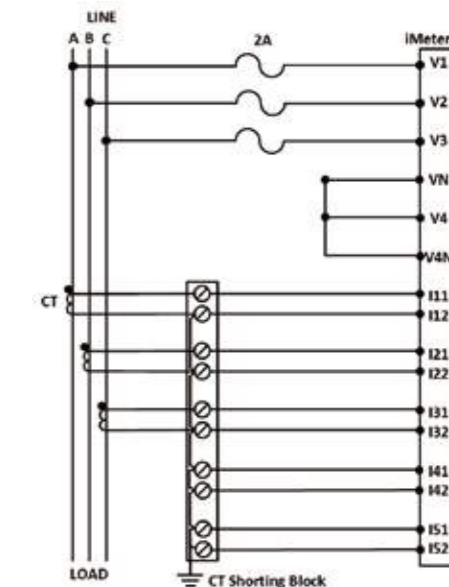
Rear Panel

iMeter 8

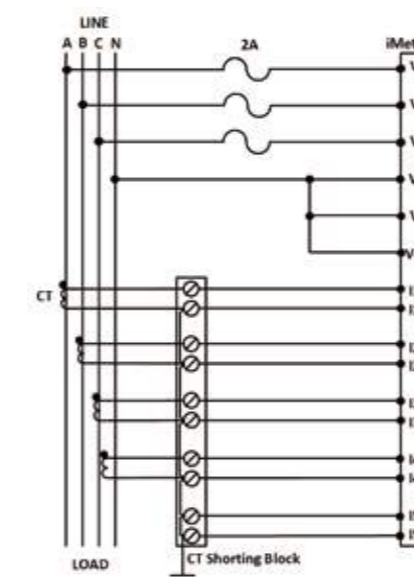
Wiring Diagrams



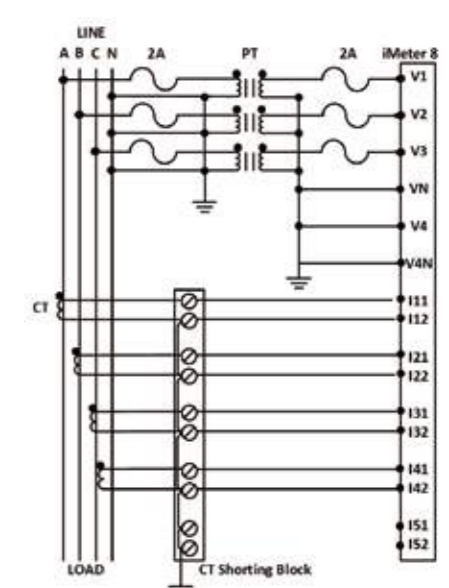
3P3W Delta with 2PTs, 3CTs



3P3W Direct Connections with 3CTs



3P4W Wye Direct Connection with 4CTs



3P4W Wye with 3PTs, 4CTs

iMeter D7

DIN Rail Advanced Power Quality Monitor



- ✓ 4GB of On-board Memory
- ✓ IEC 62053-22 Class 0.2S
- ✓ DIN Rail mount housing @ 144.8×115.8×75.6 mm
- ✓ High-Resolution, Color IPS Dot-Matrix LCD Display
- ✓ Dual 100BaseT Ethernet and one RS-485 Ports
- ✓ IEC 61000-4-30 Ed.3 Class A
- ✓ Conducted Emissions in 2-150kHz Range
- ✓ EN 50160 & IEC61850, IEEE Sta 519-2022

Features Summary

General

Class (kWh)	0.2S
Dimensions (mm)	144.8(W)x115.8(H)x75.6(D)
Display (Backlit)	Color IPS 320x240 (Backlit)
True RMS Sampling Rate	1024
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, Modbus TCP, HTTPS, SNTP, SMTPS, FTPS, MQTT, IPSec VPN, Ethernet Gateway, IEC61850, IEEE1588 (PTP)
RS-485 Port	1
Ethernet	2
Web Server	✓

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 63 rd
Voltage/Current Unbalance	✓
Waveform Capture on Screen	✓
Waveform Recording	✓
Dip Swell Detection	✓
Transient Detection	✓
IEC 61000-4-30	Ed.3 Class A Certified
2-150kHz Conducted Emission	Compliant

I/O

Digital Input (DI)	4
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	3DO or (3 Opt.)SS
Analog Input (AI), 0/4-20mA	(2 Opt.)
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	3
IRIG-B (GPS)	✓

Logs

SOE Log	1024 entries
PQ Log	1024 entries
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	4GB

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

Basic Measurements (1-second update)

- 3-phase U, I, P, Q, S and PF as well as U4, I4, Ung, Frequency, IR[#] and optional Ir[#]

[#]IR – Calculated Residual Current, Ir – Measured Residual Current

High-Speed Measurements

- 3-Phase U, I, P, Q, S, and PF as well as U4, I4 @ ½ cycle
- Frequency @ 5 cycle

Energy

- Per-phase kWh, kvarh Import/Export/Net/Total and kVAh Total
- Total RMS kWh, kvarh Import/Export/Net/Total and kVAh Total
- Total Fundamental kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export/Net/Total
- Total Harmonic kWh, kvarh Import/Export from 2nd to 63rd

Demands

- Present and Predicted Demand for 3-phase U, I, P, Q, S, PF as well as U4, I4, Frequency
- Present Demand of 4-phase U & I THD/TOHD/TEHD, 4-phase Current K-Factor, U & I Unbalance, Over Deviation & Under Deviation of Voltage and Frequency, 4-phase Fundamental Current
- Max./Min. values per Demand Interval
- Maximum Demands for This Month & Last Month (or Since Last Reset & Before Last Reset)
- Demand Synchronization with DI

Multi-Tariff TOU Capability

- Two independent sets of TOU Schedules
 - Up to 12 Seasons
 - 90 Holidays or Alternate Days and 3 Weekdays
 - 20 Daily Profiles, each with 12 Periods in 15min intervals
 - 8 Tariffs, each providing the following information:
 - kWh/kvarh Import/Export and kVAh
 - P & Q Import/Export Maximum Demands
 - Register rollover at 100,000,000,000.000 kWh
- Switching between two TOU schedules manually or according to pre-programmed time
- 12 Historical Logs for Energy and Max. Demand

Data and Event Recorders

- 4GB on-board non-volatile Log Memory

Interval Energy Recorder (IER) and Accumulative Energy Recorder (AER)

- Both IER Log and AER Log support the recording of per-phase and Total RMS kWh, kvarh Import/Export/Net/Total and kVAh Total, Total Fundamental and Total Harmonic kWh, kvarh Import/Export
- Recording Interval from 1 minute to 65535 minutes
- Max. Recording Depth @ 65535 records
- Support FIFO and Stop-When-Full mode

Statistical Data Recorder (SDR)

- 8 SDR Logs of max. 64 parameters each
- Recording of the Max., Min., Avg. and 95th percentile values for real-time measurements including U, I, Freq., P, Q, S, PF, Harmonics, Deviations and Unbalances
- Recording interval from 1 to 60 minutes
- 90 days @ 3-minute, 300 days @ 10-minute, 450-day @ 15-minute
- Downloadable via free software
- Support FIFO or Stop-When-Full mode

Data Recorder (DR)

- 8 DR Logs of max. 64 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Deviations, MSV, Unbalances and Flicker
- Configurable Recording Offset and Interval from 1s to 40 days
- Max. Recording Depth @ 65535 records
- Support FIFO or Stop-When-Full mode

Max./Min. Recorder (MMR)

- 4 Max./Min. Recorders of 20 parameters each
- RMS/Fundamental/Harmonic/Interharmonic Measurements, Demands, Deviations, Mains Signalling Voltages, Unbalances and Flicker
- Two transfer modes:
 - Manual: Max./Min. Since Last Reset & Before Last Reset
 - Auto: Max./Min. of This Month & Last Month

SOE Log

- 1024 FIFO events time-stamped to ±1ms resolution
- Setpoint event, I/O operation, Dip, Swell, Interruption, Transient, Rapid Voltage Change, Inrush Current, Mains Signalling Voltage, Motor Start, iTrigger, etc.
- Record the characteristic data for Setpoint events as well as WFR, DWR, RMSR, ITIC and SEMI F47 Curve for PQ events

Device Log

- 1024 FIFO entries time-stamped to ±1ms resolution
- Power On/Off, Setup changes, Time Sync., Device Operations and Self-diagnostics

iTrigger

- Cross trigger DO, SOE Log, WFR, DWR, RMSR and Alarm Email with other iMeter devices within the same local area network (LAN)
- Provides Group ID and MAC Address as the trigger source

IEEE Std 519-2022 Report

- 365 Daily Reports for statistical evaluations on Voltage and Current Harmonics based on 99th percentile very short time (3 s) values
- 52 Weekly Reports for statistical evaluations on Voltage Harmonics (95th percentile) and Current Harmonics (95th and 99th percentile) short time (10 min) values
- Programmable settings for Report Mode, PCC Voltage, Max. Short Circuit Current, etc.

Mechanical Characteristics

Panel Cutout	68x68 mm
Unit Dimensions	72x72x71.8 mm (LCD), 72x72x76.8 mm (LED)
IP Rating	52
Shipping Weight	0.802 kg
Shipping Dimensions	125x110x80 mm

PMC-D726M Split-Core CT Spec

Split-Core CTs Model # (PMC-SCCT)	Rating	Accuracy	Aperture (mm)	Output Wire	I _{max}	Maximum Burden
100A-40mA-16-A	100A/40mA	0.5	Ø16	2m	200A	10Ω
200A-40mA-24-A	200A/40mA	0.5	Ø24	2m	240A	10Ω
400A-40mA-35-A	400A/40mA	0.5	Ø35	2m	480A	10Ω
800A-40mA-A	800A/40mA	0.5	80x50	2m	960A	10Ω
5A-2mA-16-A	5A/2mA	2.0	Ø16	2m	20A	226Ω

Ordering Information

Product Code	Description								
PMC-D726M DIN72 3-Phase Multifunction Meter									
Display Screen	<table border="1"> <tr> <td>""</td> <td>LED</td> </tr> <tr> <td>L</td> <td>LCD</td> </tr> </table>	""	LED	L	LCD				
""	LED								
L	LCD								
Input Current	<table border="1"> <tr> <td>5</td> <td>5A</td> </tr> <tr> <td>1</td> <td>1A</td> </tr> <tr> <td>SCCT*</td> <td>For use with 100A, 200A, 400A and 800A SCCTs with 40mA Output</td> </tr> <tr> <td>SCCTA*</td> <td>For use with 5A SCCT with 2mA Output</td> </tr> </table>	5	5A	1	1A	SCCT*	For use with 100A, 200A, 400A and 800A SCCTs with 40mA Output	SCCTA*	For use with 5A SCCT with 2mA Output
5	5A								
1	1A								
SCCT*	For use with 100A, 200A, 400A and 800A SCCTs with 40mA Output								
SCCTA*	For use with 5A SCCT with 2mA Output								
Input Voltage	<table border="1"> <tr> <td>3</td> <td>240V/415V</td> </tr> </table>	3	240V/415V						
3	240V/415V								
Power Supply	<table border="1"> <tr> <td>2</td> <td>95/250V AC/DC, 47-440Hz</td> </tr> </table>	2	95/250V AC/DC, 47-440Hz						
2	95/250V AC/DC, 47-440Hz								
System Frequency	<table border="1"> <tr> <td>5</td> <td>45-65Hz</td> </tr> </table>	5	45-65Hz						
5	45-65Hz								
I/O	<table border="1"> <tr> <td>C*</td> <td>1xAO</td> </tr> <tr> <td>D</td> <td>2xDI+2xDO</td> </tr> </table>	C*	1xAO	D	2xDI+2xDO				
C*	1xAO								
D	2xDI+2xDO								
Communications	<table border="1"> <tr> <td>A</td> <td>1xRS-485 Port, Modbus</td> </tr> </table>	A	1xRS-485 Port, Modbus						
A	1xRS-485 Port, Modbus								
Display Language	<table border="1"> <tr> <td>E</td> <td>English</td> </tr> </table>	E	English						
E	English								
PMC-D726M	- 5 3 2 5 D A E PMC-D726M-5325DAE (LED Example)								
PMC-D726M	- L 5 3 2 5 D A E PMC-D726M-L5325DAE (LCD Example)								

* Additional charges apply

Optional I4 Input (I41, I42)

In	5A (5A/1A Auto-scaling)
Range	0.1% to 120% In
Starting Current	0.1% In

Optional Residual Current Input (IR11, IR12)

In	0.5mA
Range	2% to 500% In
CT Type	Solid-Core or Split-Core Residual Current CT

Mechanical Characteristics

Panel Cutout	92x92 mm (3.62"x3.62")
Unit Dimensions	96x96x88 mm
IP Rating	65 (Front Panel), 30 (Body)

Ordering Information



Product Code	Description						
PMC-53A-E Ethernet Multifunction Meter							
Basic Function	E Dot-Matrix LCD, Monthly & Daily Freeze Log, Data Recorder, 8MB Memory, 1x100BaseT Ethernet Port and 1xRS-485 (Modbus RTU, BACnet MS/TP and DNP 3.0)						
Input Current	<table border="1"> <tr> <td>5</td> <td>5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)</td> </tr> <tr> <td>1</td> <td>1A (Class 0.5S)</td> </tr> <tr> <td>4^</td> <td>For use with 100A, 200A, 400A, 800A and 1600A to 40mA Split-Core CTs</td> </tr> </table>	5	5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)	1	1A (Class 0.5S)	4^	For use with 100A, 200A, 400A, 800A and 1600A to 40mA Split-Core CTs
5	5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)						
1	1A (Class 0.5S)						
4^	For use with 100A, 200A, 400A, 800A and 1600A to 40mA Split-Core CTs						
Input Voltage	<table border="1"> <tr> <td>9</td> <td>400ULN/690ULL</td> </tr> </table>	9	400ULN/690ULL				
9	400ULN/690ULL						
Power Supply	<table border="1"> <tr> <td>2</td> <td>95-250 VAC/DC, 47-440Hz</td> </tr> <tr> <td>3</td> <td>20-60VDC</td> </tr> </table>	2	95-250 VAC/DC, 47-440Hz	3	20-60VDC		
2	95-250 VAC/DC, 47-440Hz						
3	20-60VDC						
Frequency	<table border="1"> <tr> <td>5</td> <td>45Hz-65Hz</td> </tr> </table>	5	45Hz-65Hz				
5	45Hz-65Hz						
I/O	<table border="1"> <tr> <td>A</td> <td>4xDI +2xDO (Mechanical Relay)</td> </tr> <tr> <td>B</td> <td>4xDI +2xSS Pulse Output</td> </tr> </table>	A	4xDI +2xDO (Mechanical Relay)	B	4xDI +2xSS Pulse Output		
A	4xDI +2xDO (Mechanical Relay)						
B	4xDI +2xSS Pulse Output						
Analog Inputs	<table border="1"> <tr> <td>X</td> <td>None</td> </tr> <tr> <td>A*^</td> <td>I4 (5A/1A Auto-Scaling) +AI (0/4-20mA) +Ir (0-0.5mA)</td> </tr> </table>	X	None	A*^	I4 (5A/1A Auto-Scaling) +AI (0/4-20mA) +Ir (0-0.5mA)		
X	None						
A*^	I4 (5A/1A Auto-Scaling) +AI (0/4-20mA) +Ir (0-0.5mA)						
Language	E English						
PMC-53A	- E - 5 9 2 5 A X E PMC-53A-E-5925AXE (Standard Model)						

* Additional charges apply

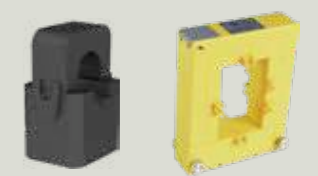
^ The Analog Inputs Option A is not available for the Input Current Option 4

Accessories

Residual Current CT

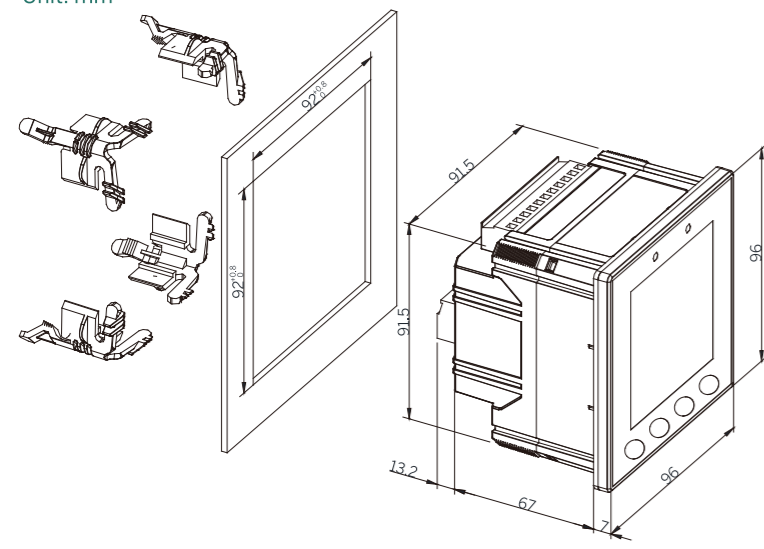
Solid-Core Models	160A (CT517203, Ø=46 mm)	
	400A (CT517403, Ø=80 mm)	
	1000A (CT517603, Ø=120 mm)	
	630A (CT519703, 220x50 mm)	
Split-Core Models	160A (CT553203, Ø=48 mm)	
	225A (CT553303, Ø=68 mm)	
Primary Input	1A (Residual Current) @ 50/60Hz	/
Secondary Output	0.5mA	/
Range	2-500%	/
Accuracy	Class 0.5 (Solid-Core), Class 3 (Split-Core)	/

Split-Core CT

Models	100A (PMC-SCCT-100A-40mA-16-A, Ø=16mm)	
	200A (PMC-SCCT-200A-40mA-24-A, Ø=24mm)	
	400A (PMC-SCCT-400A-40mA-35-A, Ø=35mm)	
	800A (PMC-SCCT-800A-40mA-A, 80x50mm)	
	1600A (PMC-SCCT-1600A-40mA-A, 130x55mm)	
Primary Input	100A/200A/400A/800A/1600A @ 50/60Hz	/
Secondary Output	40mA	/
Range	0.15%-120%In	/
Accuracy	Class 0.5	/

Device View and Dimensions

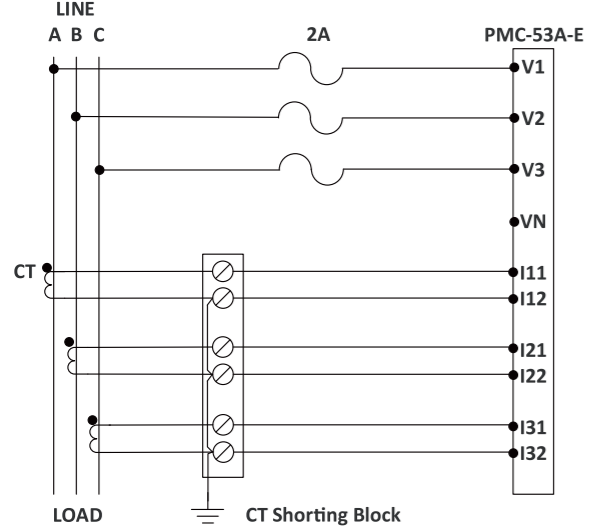
Unit: mm



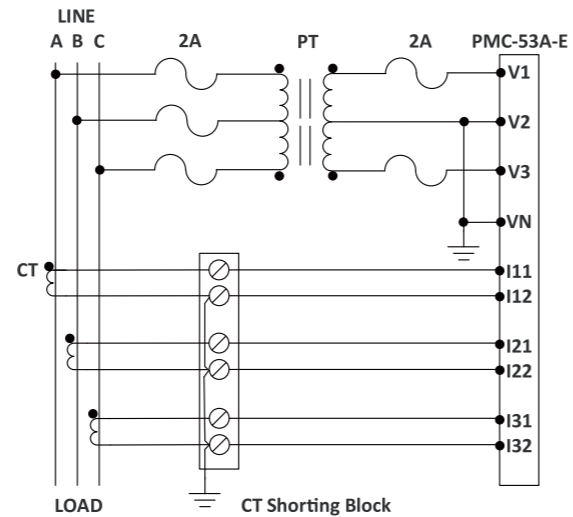
Panel Cutout

Rear View

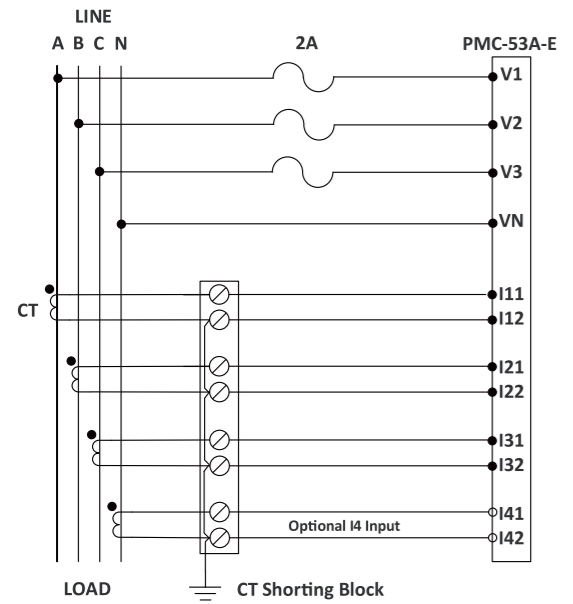
Wiring Diagrams



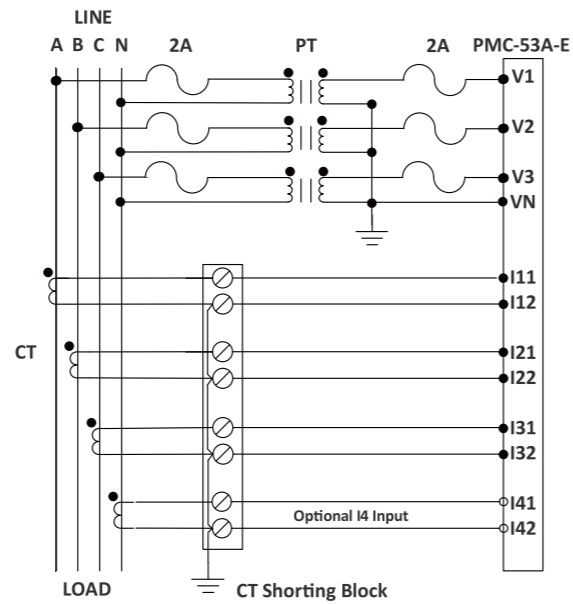
3P3W Direct Connection with 3CTs



3P3W with 2PTs and 3CTs



3P4W Direct Connection with 4CTs
(Optional I41 & I42)



3P4W with 3PTs and 4CTs
(Optional I41 & I42)

Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2% reading	0.1V
Current	±0.2% reading	0.001A
P, Q, S	±0.5% Reading	0.001kX
kWh	IEC 62053-21 Class 1	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	±1.0% reading	0.001
Frequency	±0.02Hz	0.01Hz
AO	±0.5% F.S.	-
Harmonics	IEC 61000-4-7 Class B	0.1%
K-Factor	IEC 61000-4-7 Class B	0.1

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Standard	240ULN/415ULL
Range	10V to 120% Un
Starting Voltage	10V
PT Ratio	1-1,000,000 (Primary), 1-690 (Secondary)
Overload	1.2xUn continuous, 2xUn for 1s
Burden	<0.02VA per phase
Frequency	45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

Standard Input	5A
Optional Input	1A
CT Ratio	1-30,000 (Primary), 1-5 (Secondary)
Optional SCCT Input	2mA (SCCTA Option for 5A SCCT) 40mA (SCCT Option for 100-800A SCCT)
Range	0.1% to 120% In
Starting Current	0.1% In
Overload	1.2xIn continuous, 10xIn for 10s, 20xIn for 1s
Burden	<0.25VA per phase

Power Supply (L/+, N/-)

Standard	95-250VAC/DC, ±10%, 47-440Hz
Burden	<2W

Digital Inputs (DI1, DI2, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Digital Outputs (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC

Analog Output (AO+, AO-)

Type	0-20/4-20 mA
Parameter	Selectable
Loading	500 Ω maximum
Overload	24 mA maximum

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa

Main Features

Metering

Basic Measurements

- ULN, ULL per Phase and Average
- Current per Phase and Average with calculated Neutral
- kW, kvar, kVA, PF per Phase and Total
- Bi-directional energy measurements
- Frequency

Multi-Tariff TOU Capability

- One TOU schedule, providing
 - 6 Seasons
 - 6 Daily Profiles, each with 6 Periods in 15-minute interval
 - 10 Holidays or Alternate Days
 - 4 Tariffs, each providing kWh and kvarh Import/Export and kVAh

Demands

- Demands and Maximum Demands Timestamp for per Phase Current, kW Total, kvar Total and kVA Total

Event Recorder

SOE Log

- 16 events time-stamped to ±1ms resolution
- Record all setup, Setpoint and Digital Input status changes

Inputs and Outputs

Digital Inputs

- 2 channels, volt free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring

Digital Outputs

- 2 Form A mechanical relays for alarming and general purpose control
- 5A @ 250VAC or 30VDC

Analog Output (Optional)

- Optional AO module for Analog application
- 0/4-20mA DC input with programmable zero and full scale

Communications

- Optically isolated RS-485 port at 1,200 to 19,200 bps
- Modbus RTU support

Setpoints

- 6 user programmable setpoints with extensive list of monitoring parameters including Voltage, Current, Power, and Demand
- Configurable Threshold and Time Delay
- SOE Logging and DO trigger

Appearance



PMC-53A

Intelligent Multifunction Meter



- ✓ Compliance with the IEC 62053-22 Class 0.5S Standard
- ✓ DIN form factor measuring @ 96x96x88 mm
- ✓ A large, backlit, Dot-Matrix LCD

Features Summary

General

Class (kWh)	0.5S
Dimensions (mm)	96(W)x96(H)x88(D)
Display (Backlit)	Dot-Matrix LCD (Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, BACnet MS/TP, Metasys N2 and DNP3.0
RS-485 Port	1 + (1 Opt.)
Ethernet	-
Web Server	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

I/O

Digital Input (DI)	(6 Opt.)
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	(4 Opt.)DO or (4 Opt.)SS
Analog Input (AI), 0/4-20mA	(1 Opt.)
Analog Output (AO), 0/4-20mA	(1 Opt.)
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	(2 Opt.)
IRIG-B (GPS)	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	✓
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

Logs

SOE Log	100 entries
PQ Log	-
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	(4MB Opt.)

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

Basic Measurements

- ULN, ULL per Phase and Average
- Current per Phase and Average with calculated Neutral
- kW, kvar, kVA, PF per Phase and Total
- kWh, kvarh Import/Export/Net/Total and kVAh Total
- Frequency
- Device Operating Time (Running Hours)
- Optional I4 Measurements
- Calculated Residual Current Ir (with optional I4 Input)

Advanced Measurements

- 1-cycle Real-time U & I Waveform Display @ 1s update rate
- U and I THD, TOHD, TEHD and Individual Harmonics up to 31st
- Current TDD, TDD Odd, TDD Even, K-Factor and Crest Factor
- U and I Unbalance and Phase Angle
- Displacement PF
- Fundamental U, I and P per Phase
- Total Fundamental kW & Total Harmonic kW
- U and I Symmetrical Components
- kvarh Q1-Q4
- Interval Energy for kWh/kvarh Import/Export and kVAh

Demands

- Present, Predicted and Max. Demands for kW/kvar/kVA Total and per Phase Current with Time-stamp for This Month & Last Month (or Since Last Reset & Before Last Reset)

Multi-Tariff TOU Capability

- Two TOU schedules, each providing:
 - 12 Seasons
 - 20 Daily Profiles, each with 12 Periods in 15-minute interval
 - 90 Holidays or Alternate Days
 - 8 Tariffs

Data and Event Recorders

Maximum Demand Log

- Maximum Demand Log with Timestamps for Ia, Ib, Ic, kW, kvar, kVA for the month and kW, kvar, kVA for TOU Tariffs 1 to 8
- Configurable through the Front Panel as well as communications for This Month & Last Month (or Since Last Reset & Before Last Reset)

Max./Min. Log

- Max./Min. Log with Timestamps for parameters such as Voltage, Current, In, I4, Freq., kW, kvar, kVA, PF, Unbalance, K-Factor, Crest Factor and THD
- Configurable for This Month & Last Month (or Since Last Reset & Before Last Reset)

Monthly Energy Log

- Energy Log with Timestamps for kWh, kvarh Import/

Export/Net/Total, kWh, kvarh Import/Export for TOU Tariffs 1 to 8, kVAh Total & kvarh Q1-Q4

- Configurable through communications for present and the last 12 months

Daily/Monthly Freeze Log (Optional)

- Daily/Monthly Log with Timestamps for kWh, kvarh, kVAh Total & Maximum Demand kW, kvar, kVA Total
- Configurable through communications for 60 daily freeze records and 36 monthly freeze records

Data Recorder (Optional)

- 5 Data Recorders of 16 parameters each for Real-time measurements, Harmonics, Energy, Demand, TOU, Pulse Counters, etc.
- Recording interval from 1 minute to 40 days
- Configurable capacity up to a maximum of 100 days at 15-minute interval

SOE Log

- 100 events time-stamped to ±1ms resolution
- Recording Events for Setup changes, Setpoint and DI status changes as well as DO operations

Inputs and Outputs

Digital Inputs (Optional)

- Up to 6 channels, volt free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information
- Tariff switching based on DI status

Digital Outputs (Optional)

- Up to 4 Form A mechanical relays for alarming and general purpose control

Pulse Outputs (Optional)

- Up to 4 Form A Solid State Relays for kWh and kvarh pulsing

Analog Inputs and Outputs (Optional)

- Optional AI and AO modules for Analog applications
- 0/4-20mA DC input with programmable zero and full scales

Communications

- Optically isolated RS-485 port at maximum 38,400 bps
- Selectable Modbus RTU, BACnet MS/TP, Metasys N2 and DNP 3.0
- Optional 2nd RS-485 port (Modbus RTU only)

Setpoints

Supports comprehensive monitoring and control functions such as SOE Logging, Data Recording or DO Triggering for Alarm or Control Actions.

- 9 user-programmable setpoints
- Configurable thresholds, time delays and DO triggers

PMC-D726M

Digital Multifunction Meter



- ✓ Compliance with the IEC 62053-21 Class 1 kWh Accuracy
- ✓ DIN size @ 72x72x71.8 mm (LCD), @ 72x72x76.8 mm (LED)
- ✓ 4-digit, backlit LCD or High-Contrast LED Display
- ✓ Optional Split-Core CT (SCCT)

Features Summary

General

Class (kWh)	1
Dimensions (mm)	72(W)x72(H)x76.8(D)
Display (Backlit)	B&W (Backlit) /LED
True RMS Sampling Rate	64
Battery-backed Real-time Clock	-
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU
RS-485 Port	1
Ethernet	-
Web Server	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

I/O

Digital Input (DI)	(2 Opt.)
Pulse Counter	-
Mechanical Digital Output (DO)/Solid State Output (SS)	(2 Opt.)DO
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	(1 Opt.)
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	Calc.
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Logs

SOE Log	16 entries
PQ Log	-
Energy Log	-
Max./Min. Log	-
On-board Log Memory	-

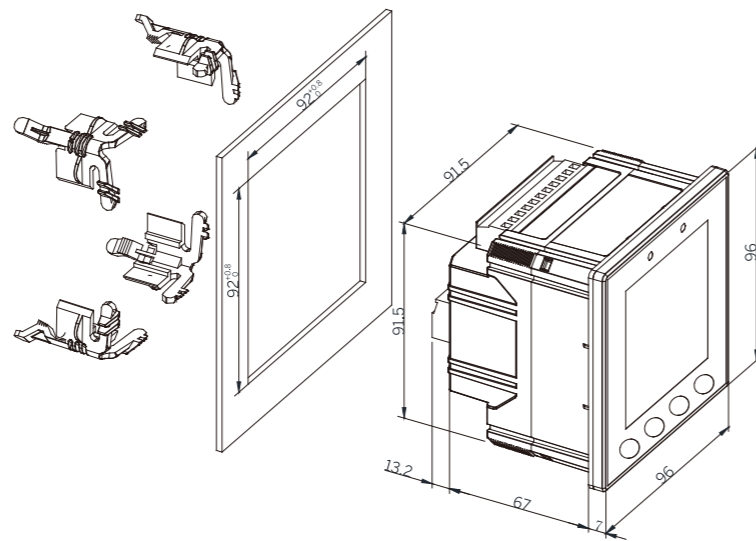
(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Device View and Dimensions

Unit: mm

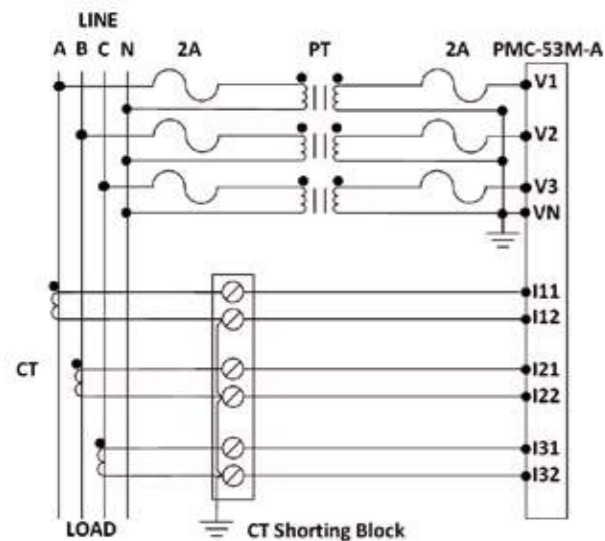


- ① LED Pulse Output
- ② Enclosure
- ③ Front Panel
- ④ Comm. Indicator
- ⑤ Units
- ⑥ Measurements
- ⑦ Buttons

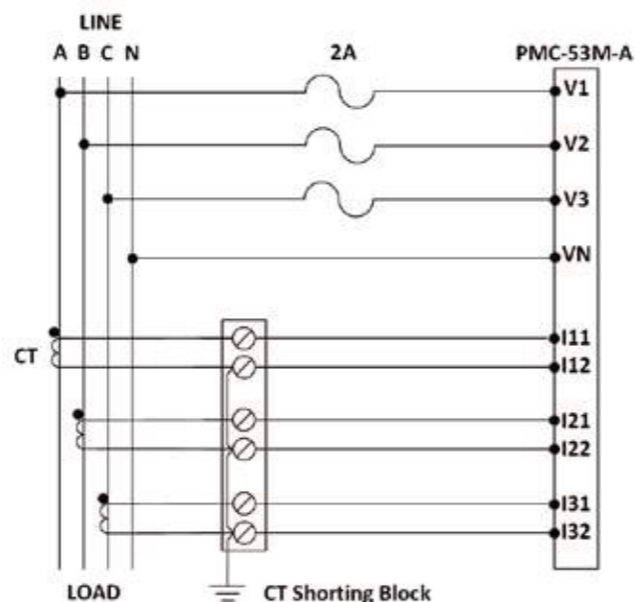


Panel Cutout

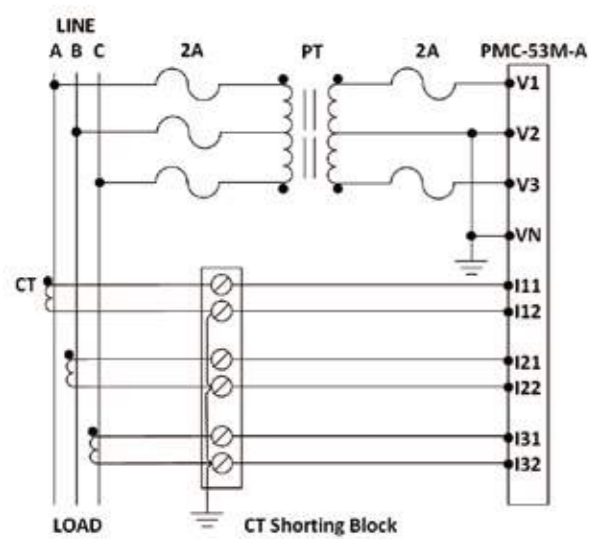
Wiring Diagrams



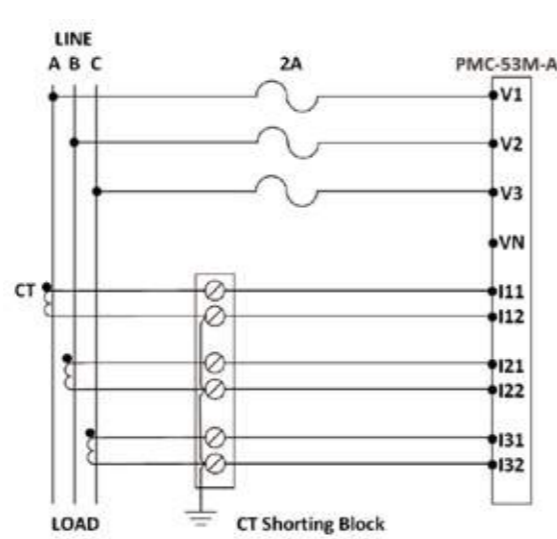
3P4W with 3PTs and 3CTs



3P4W Direct Connection with 3CTs



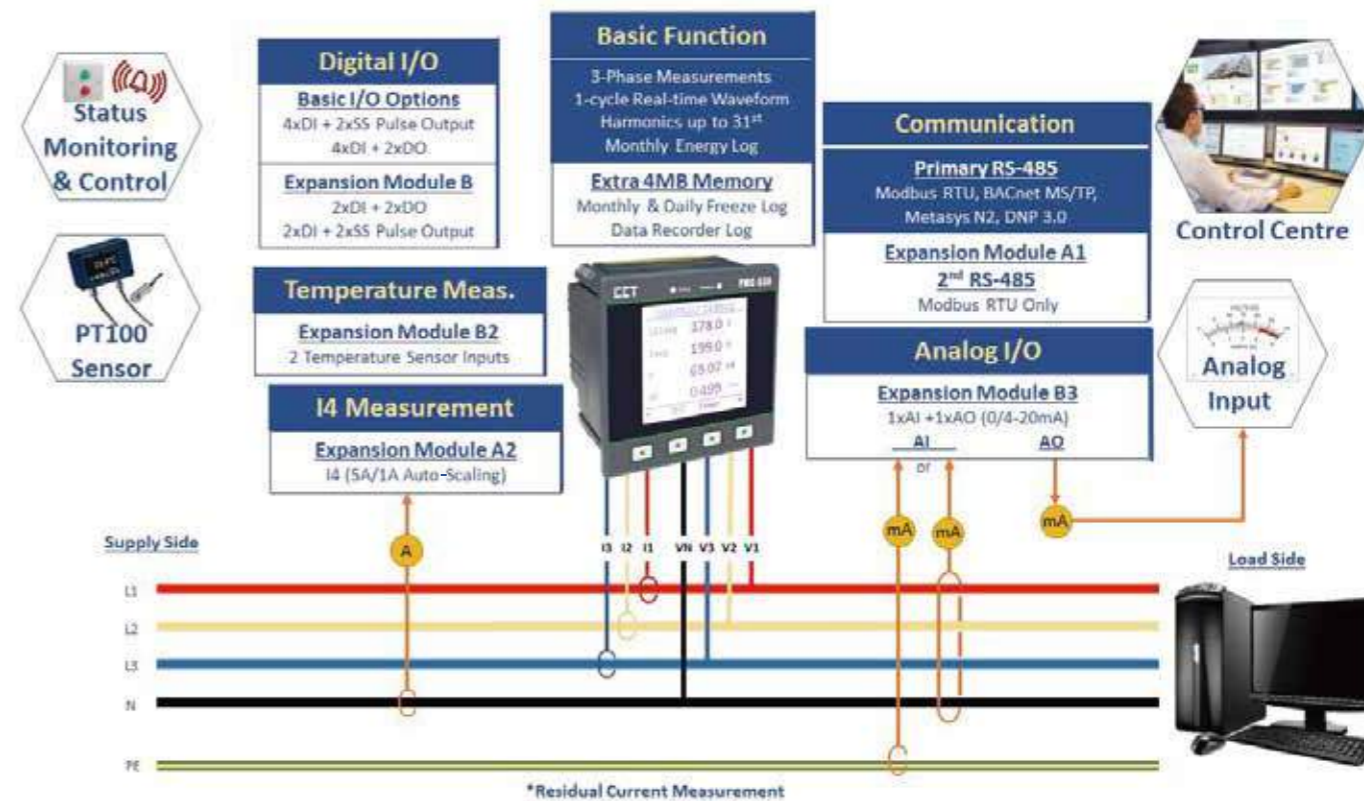
3P3W with 2PTs and 3CTs



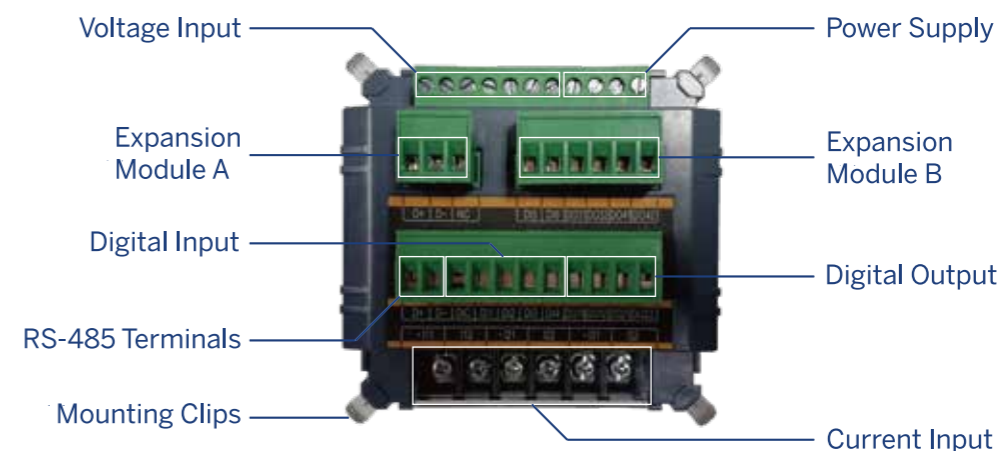
3P3W Direct Connection with 3CTs

Typical Application

PMC-53A



Appearance



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2%	0.001V
Current	±0.2%	0.001A
I4 (measurement)	±0.2%	0.001A
P, Q, S	±0.5%	0.001kX
kWh, kVAh	IEC 62053-22 Class 0.5S ANSI C12.20 Class 0.2 EN 50470-1/3: 2006 Class C	0.1kXh
kvarh	IEC 62053-24 Class 0.5S IEC 62053-23 Class 2	0.1kvarh
PF	±0.5%	0.001
Frequency	±0.02Hz	0.01Hz
THD	IEC 61000-4-7 Class B	0.001%
K-Factor	IEC 61000-4-7 Class B	0.001
Phase Angle	±1°	0.1°

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Standard Un	400ULN/690ULL
Range	10V to 1.2Un
Overload	1.2xUn continuous, 2xUn for 1s
Burden	<0.02VA per phase
Measurement Category	CAT III up to 600ULL
Frequency	45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

Standard In	5A, Optional 1A
Range	0.1% to 200% In
Starting Current	0.1% In
Overload	2xIn continuous, 20xIn for 1s
Measurement Category	CAT III up to 600ULL
Burden	<0.15VA per phase @ 5A

Optional I4 Input (I41, I42)

In	5A (5A/1A Auto-scaling)
Range	0.1% to 200% In
Starting Current	0.1% In

Power Supply (L+, N-)

Standard	95-250VAC/DC, ±10%, 47-440Hz
Optional	20-60VDC
Optional	95-480VAC/DC, ±10%, 47-440Hz
Burden	<2W
Overvoltage Category	CAT III up to 300ULN

Optional Digital Inputs (DI1, DI2, DI3, DI4, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Optional Digital Outputs (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Standard Un	400ULN/690ULL
Range	10V to 1.2Un
Overload	1.2xUn continuous, 2xUn for 1s
Burden	<0.02VA per phase
Measurement Category	CAT III up to 600ULL
Frequency	45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

Standard In	5A (5A/1A Auto-Scaling)
Range	0.1% to 200% In
Starting Current	0.1% In
Overload	2xIn continuous, 20xIn for 1s
Measurement Category	CAT III up to 600ULL
Burden	<0.15VA per phase

Power Supply (L+, N-)

Standard	95-250VAC/DC, ±10%, 47-440Hz
Burden	<2W
Overvoltage Category	CAT III up to 300ULN

Digital Inputs (DI1, DI2, DI3, DI4, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Digital Outputs (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC

Installation Torque

Current Inputs	1.3 N.m
Power Supply, Voltage Inputs, RS-485, I/O	0.5 N.m

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa

Mechanical Characteristics

Panel Cutout	92x92 mm (3.62"x3.62")
Unit Dimensions	96x96x88 mm
IP Rating	65

Ordering Information

Product Code	Description
PMC-53M-A DIN96 Intelligent Multifunction Meter	
Basic Function	A 7-segment LCD, 1xRS-485 with Modbus
Input Current	5 5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)
Input Voltage	9 400ULN/690ULL
Power Supply	2 95-250 VAC/DC, 47-440Hz
Frequency	5 45Hz-65Hz
I/O	X None B* 4xDI+2xDO
Communications	A 1xRS-485
Language	E English
PMC-53M - A - 5 9 2 5 X A E	PMC-53M-A-5925XAE (Standard Model)

* Additional charges apply

Main Features

Metering

Basic Measurements

- ULN, ULL per Phase and Average
- Current per Phase and Average with calculated Neutral Current
- kW, kvar, kVA, PF per Phase and Total
- kWh, kvarh Import/Export/Net/Total and kVAh Total
- Frequency
- Device Operating Time (Running Hours)
- Optional DI Pulse Counters

Advanced Measurements

- U and I THD, TOHD, TEHD and Individual Harmonics up to 31st
- Current TDD, TDD Odd, TDD Even, K-Factor and Crest Factor
- U and I Unbalance and Phase Angle
- Displacement PF
- Fundamental U, I and kW per Phase
- Total Fundamental kW & Total Harmonic kW
- U and I Symmetrical Components
- kvarh Q1-Q4

Demands

- Present, Predicted Demands and Max. Demands for kW/ kvar/kVA Total and per Phase Current with Time-stamp for This Month & Last Month (or Since Last Reset & Before Last Reset)

Data and Event Recorders

Max./Min. Log

- Max./Min. Log with Timestamp for Real-time measurements such as Voltage, Current, In, Freq., kW, kvar, kVA, PF, Unbalance, K-Factor, Crest Factor and THD

- Configurable for This Month & Last Month (or Since Last Reset & Before Last Reset)

SOE Log

- 100 events time-stamped to ±1ms resolution
- Setup changes, Setpoint, DI status changes and DO operations

Inputs and Outputs

Digital Inputs (Optional)

- 4 channels, volt free dry contact, 24VDC internally wetted
- 1000Hz sampling for status monitoring with programmable debounce
- Pulse counting with programmable weight for each channel for collecting WAGES (Water, Air, Gas, Electricity, Steam) information

Digital Outputs (Optional)

- 2 Form A mechanical relays for alarming and general purpose control
- 5A @ 250VAC or 30VDC

Communications

- Optically isolated RS-485 port at maximum 38,400 bps
- Standard Modbus RTU support

Setpoints

- 9 user programmable setpoints with extensive list of monitoring parameters including Voltage, Current, Power, THD, etc.
- Configurable thresholds, time delays and DO triggers

Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.2% Reading + 0.05% F.S.	0.001V
Current	±0.2% Reading + 0.05% F.S.	0.001A
P, Q, S	±0.5% Reading + 0.05% F.S.	0.001kX
kWh, kVAh	IEC 62053-22 Class 0.5S	0.01kXh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	±0.5%	0.001
Frequency	±0.02Hz	0.01Hz
THD	IEC 61000-4-7 Class B	0.001%
K-Factor	IEC 61000-4-7 Class B	0.001
Phase Angle	±1°	0.1°

Optional Pulse Outputs (E1+, E1-, E2+, E2-)

Type	Form A Solid State Relay
Isolation	Optical
Maximum Load Voltage	50VDC
Maximum Forward Current	50mA

Optional Analog Input

Range	0-20mA or 4-20mA
Overload	24mA

Optional Analog Output

Range	0-20mA or 4-20mA
Loading	500Ω maximum
Overload	24mA

Installation Torque

Current Inputs	12lb-in (1.3N.m)
Power Supply, Voltage Inputs, RS-485 and I/O	5lb-in (0.5N.m)

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa

Mechanical Characteristics

Panel Cutout	92x92 mm (3.62"x3.62")
Unit Dimensions	96x96x88 mm
IP Rating	65

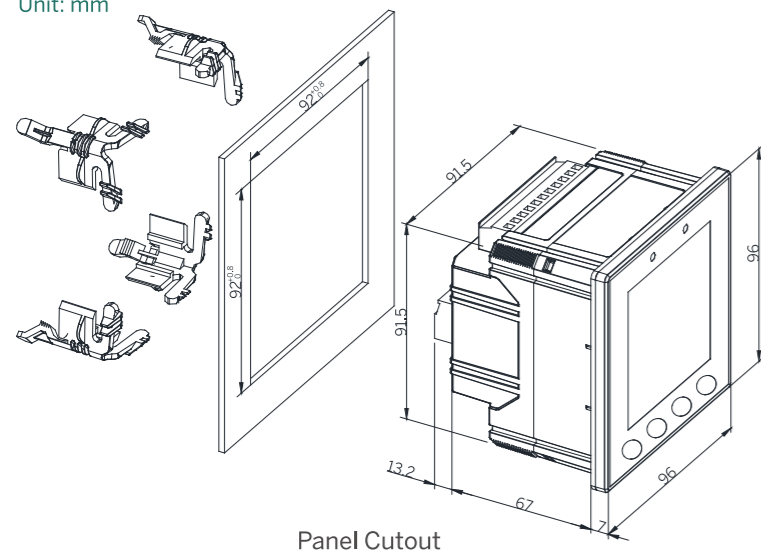
Ordering Information

Product Code	Description	
PMC-53A Intelligent Multifunction Meter		
Basic Function	1	Dot-Matrix LCD, 1xRS-485 with Multiple Protocol, Monthly Energy Log
	2*	Model 1 + Monthly & Daily Freeze Log, Data Recording Log, 4MB Memory
	3*	Model 1 + 4xDI + 2xSS Pulse Output
	A*	Model 1 + 4xDI + 2xDO (Mechanical Relay)
	B*	Model A + Monthly & Daily Freeze Log, Data Recording Log, 4MB Memory
Input Current	5	5A/1A Auto-Scaling (Class 0.5S for 5A and Class 1 for 1A)
	1	1A
Input Voltage	9	400ULN/690ULL
Power Supply	2	95-250 VAC/DC, 47-440Hz
	3	20-60VDC
	4	95-480 VAC/DC, 47-440Hz
Frequency	5	45Hz-65Hz
Language	E	English
Expansion A*	A1	1xRS-485
	A2	I4 (5A/1A Auto-Scaling)
Expansion B*	B1	2xDI + 2xDO (Mechanical Relay)
	B2	2xRTD (PT100 sensors not included)
	B3	1xAI + 1xAO (0/4-20mA)
	B4	2xDI + 2xSS Pulse Output
PMC-53A - 1 5 9 2 5 E - -	PMC-53A-15925E (Standard Model)	

* Additional charges apply
 1) Model No. with only one Expansion can be written as PMC-53A-15925E-Ax or PMC-53A-15925E-Bx
 2) Model No. with both Expansions can be written as PMC-53A-15925E-Ax-Bx
 3) Options B1 and B4 for Expansion B are invalid with options 1, and 2 under Basic Function

Device View and Dimensions

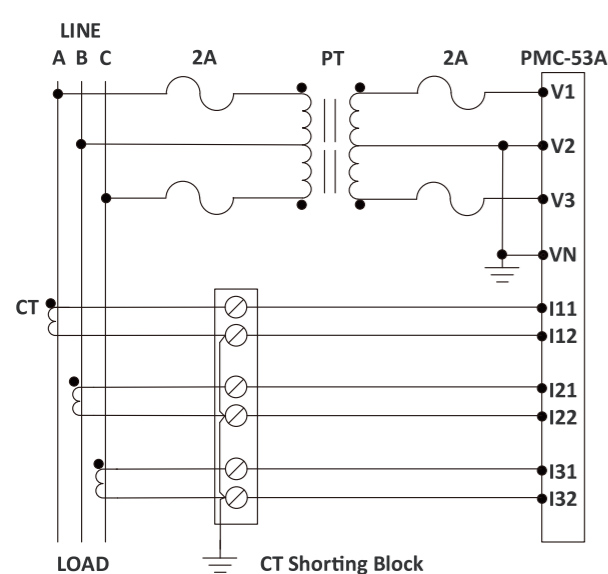
Unit: mm



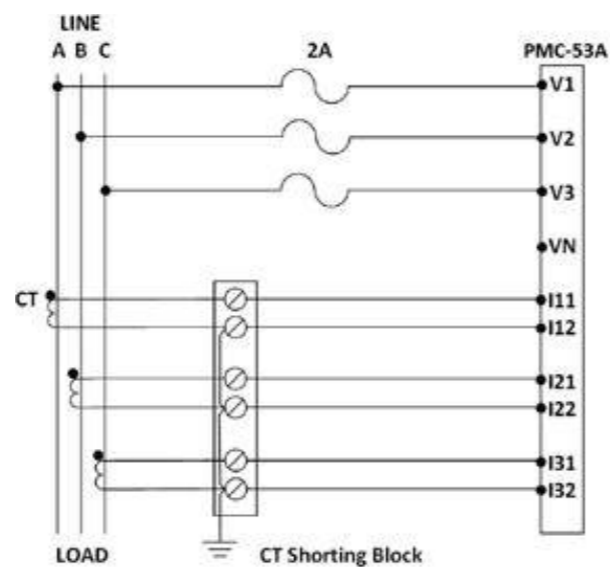
Panel Cutout

Side View

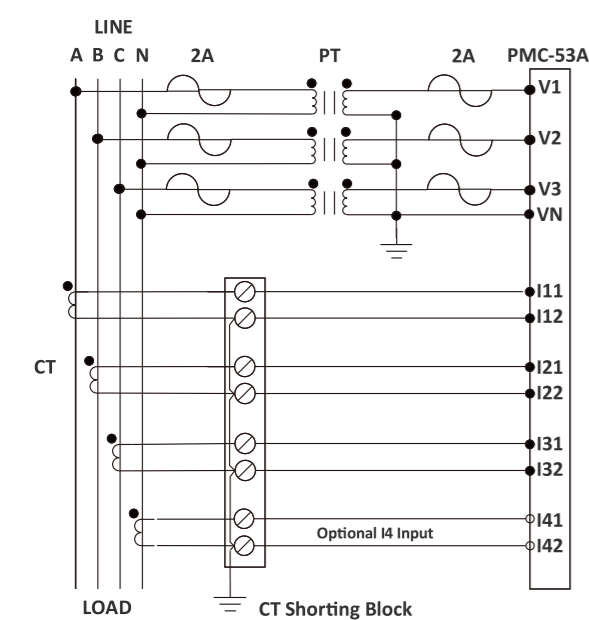
Wiring Diagrams



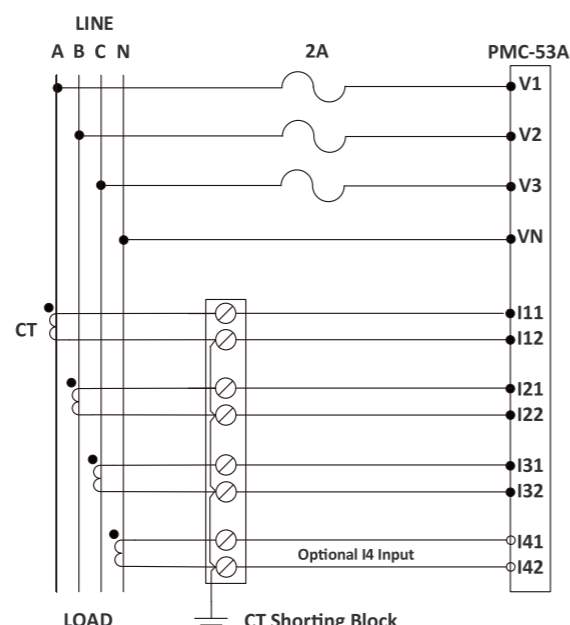
3P3W Delta with 2PTs and 3CTs



3P3W Direct Connection with 3CTs



3P4W with 3PTs and 4CTs
(Optional I41 & I42)



3P4W Direct Connection with 4CTs
(Optional I41 & I42)

PMC-53M-A

Digital Multifunction Meter



- ✓ Compliance with the IEC 62053-22 Class 0.5S Standard
- ✓ DIN form factor measuring @ 96x96x88 mm
- ✓ A large, backlit, 7-Segment LCD

Features Summary

General

Class (kWh)	0.5S
Dimensions (mm)	96(W)x96(H)x88(D)
Display (Backlit)	B&W (Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU
RS-485 Port	1
Ethernet	-
Web Server	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	Calc.
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	Dmd. Only
Maximum Demands	✓
Setpoints	✓

I/O

Digital Input (DI)	(4 Opt.)
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	(2 Opt.)DO
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

Logs

SOE Log	100 entries
PQ Log	-
Energy Log	-
Max./Min. Log	✓
On-board Log Memory	-

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value (Dmd.)-Demand

Accuracy

Parameters	Accuracy		Resolution
	SCCT/SCCTA	5A CT Input	
Voltage	±0.5%	±0.2%	0.01V
Current	±0.5%	±0.2%	0.001A
kW, kvar, kVA	±1.0%	±0.5%	0.001kX
kWh, kVAh	IEC 62053-21: 2020 Class 1	IEC 62053-22: 2020 Class 0.5S	0.01kXh
kvarh	IEC 62053-23: 2020 Class 2 IEC 62053-24: 2020 Class 1	IEC 62053-23: 2020 Class 2 IEC 62053-24: 2020 Class 0.5S	0.01kvarh
PF	±1.0%	±0.5%	0.001
Frequency	±0.02Hz		0.01Hz
In (Calculated)	±1.0%		0.001A
THD	IEC 61000-4-7 Class II		0.001%
Iresidual	±1.0%		0.1mA
Temperature	±1°C		0.1°C

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Voltage (Un)	277ULN/480ULL
Range	20-277V L-N/35-480V L-L
Burden	<2W/phase
Input Impedance	5MΩ
Permanent Overload	750VAC L-L
Frequency	45-65Hz

Current Inputs (-I11, I12, -I21, I22, -I31, I32)

	SCCT Option	SCCTA Option
Current (In)	40mA	2mA
Range	0.15%-100% In	0.1%-120% In
Starting Current	0.15% In	0.1% In
Burden	<0.25VA per phase	<0.25VA per phase
External SCCTs	50A, 100A, 200A, 400A, 800A, 1600A/40mA	5A/2mA
Optional (In)	5A	
Range	5mA-6A	

Power Supply (L+, N-)

Standard	95-250VAC/DC, ±10%, 47-440Hz
Optional	95-480VAC/DC, ±10%, 47-440Hz
Burden	<2W
Overvoltage Category	OVC III up to 300ULN

Optional Digital Inputs (DI1, DI2, DI3, DI4, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

Optional Digital Outputs (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @ 250VAC or 30VDC

Optional RTD Temperature Inputs (TC1, TC2, TC3, TC4)

RTD Type	2-Wire PT100 (sensor not included)
PT100	-40°C to 200°C
Alarm Range	45°C to 140°C

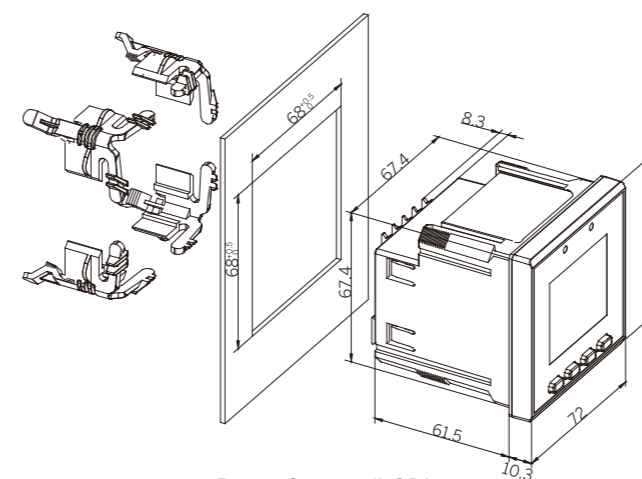
Mechanical Characteristics

Mounting	DIN Rail
Unit Dimensions	72(W)x95(H)x70(D) mm
IP Rating	30

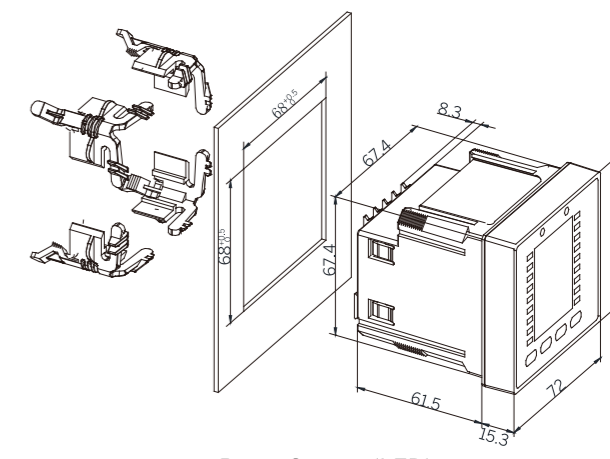
Device View and Dimensions

Unit: mm

PMC-D726M

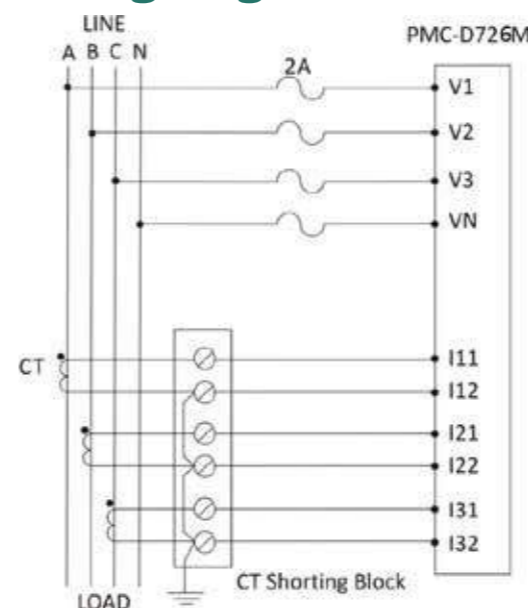


Panel Cutout (LCD)

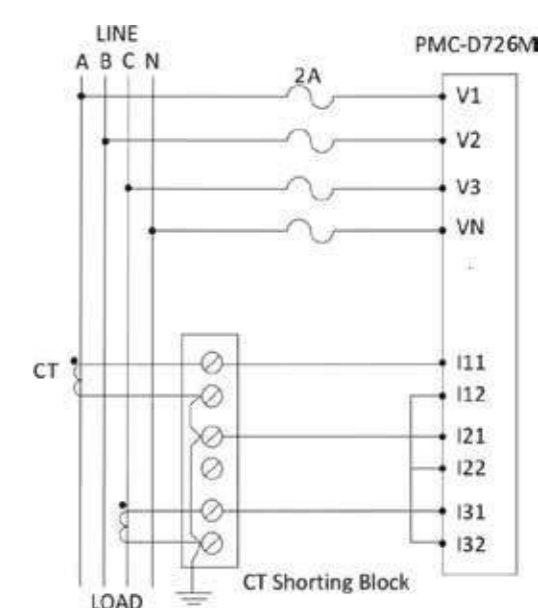


Panel Cutout (LED)

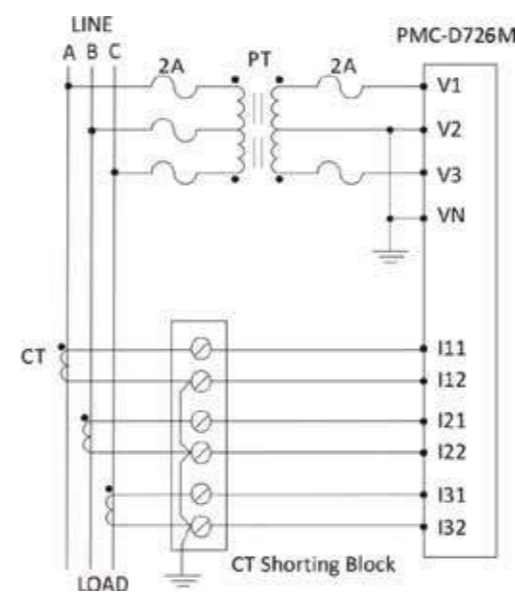
Wiring Diagrams



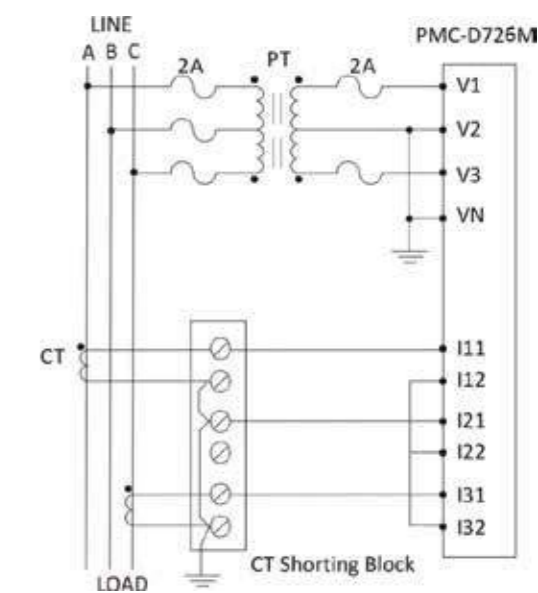
3-phase 4-Wire Wye, no PTs, 3CTs



4-Wire Wye, no PTs, 2CTs



3-phase 3-Wire Delta, 2PTs, 3CTs



3-phase 3-Wire Delta, 2PTs, 2CTs

PMC-220

Single-Phase Multifunction Meter



- ✓ NMI (Australia) Approval
- ✓ IEC 62053-21: 2020 Class 0.5 kWh Accuracy
- ✓ 35 mm DIN mount with Device Dimensions @ 36x90x65 mm
- ✓ 8-digit LCD Display
- ✓ Self-powered
- ✓ Max. 63A Direct Connect Input

Features Summary

General

Class (kWh)	0.5
Dimensions (mm)	36(W)x90(H)x65(D)
Display (Backlit)	B&W (No Backlit)
True RMS Sampling Rate	36
Battery-backed Real-time Clock	-
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU
RS-485 Port	1
Ethernet	-
Web Server	-

Power Quality

THD Voltage & Current	-
TOHD Voltage & Current	-
TEHD Voltage & Current	-
K-Factor	-
Individual Harmonics	-
Voltage/Current Unbalance	-
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

Measurements

ULN per Phase & Avg.	1 Phase only
ULL per Phase & Avg.	-
Current per Phase & Avg.	1 Phase only
Neutral Current (Meas./Calc.)	-
Frequency	✓
kW per Phase & Total	1 Phase only
kvar per Phase & Total	1 Phase only
kVA per Phase & Total	1 Phase only
PF per Phase & Total	1 Phase only
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	-
Maximum Demands	-
Setpoints	-

Logs

SOE Log	-
PQ Log	-
Energy Log	-
Max./Min. Log	-
On-board Log Memory	-

I/O

Digital Input (DI)	-
Pulse Counter	-
Mechanical Digital Output (DO)/Solid State Output (SS)	1SS
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	1
IRIG-B (GPS)	-

(Meas./Calc.)=Measured Value/Calculated Value

Main Features

Metering

Basic Measurements

- ULN, ULL per Phase and Average
- Current per Phase and Average with calculated Neutral
- kW, kvar, kVA per Phase and Total
- PF per Phase and Total
- 3-phase Total and per-phase kWh, kvarh Import/Export/Net/Total and kVAh Total
- Frequency
- Device Operating Time (Running Hours)
- Optional Temperature and Residual Current Measurements
- Optional DI for Status Monitoring and Utility Pulse Counting

Enhanced Measurements

- U and I THD, TOHD, TEHD and Individual HD up to 31st
- Current TDD, TDD Odd, TDD Even, K-Factor and Crest Factor
- U and I Unbalance and Phase Angle
- Fundamental kW and PF
- 3-phase Total and per-phase kvarh Q1-Q4
- Present, Predicted and Max. Demands

Multi-Tariff TOU Capability

- Two TOU schedules, each providing
 - 12 Seasons
 - 20 Daily Profiles with 12 Periods in 15-minute interval
 - 90 Holidays or Alternate Days
 - 8 Tariffs, each providing the following information
 - 3-phase Total and per-phase kWh/kvarh Import/Export, kVAh Total
 - kW/kvar/kVA Max. Demands

Data and Event Recorders

Max./Min. Log

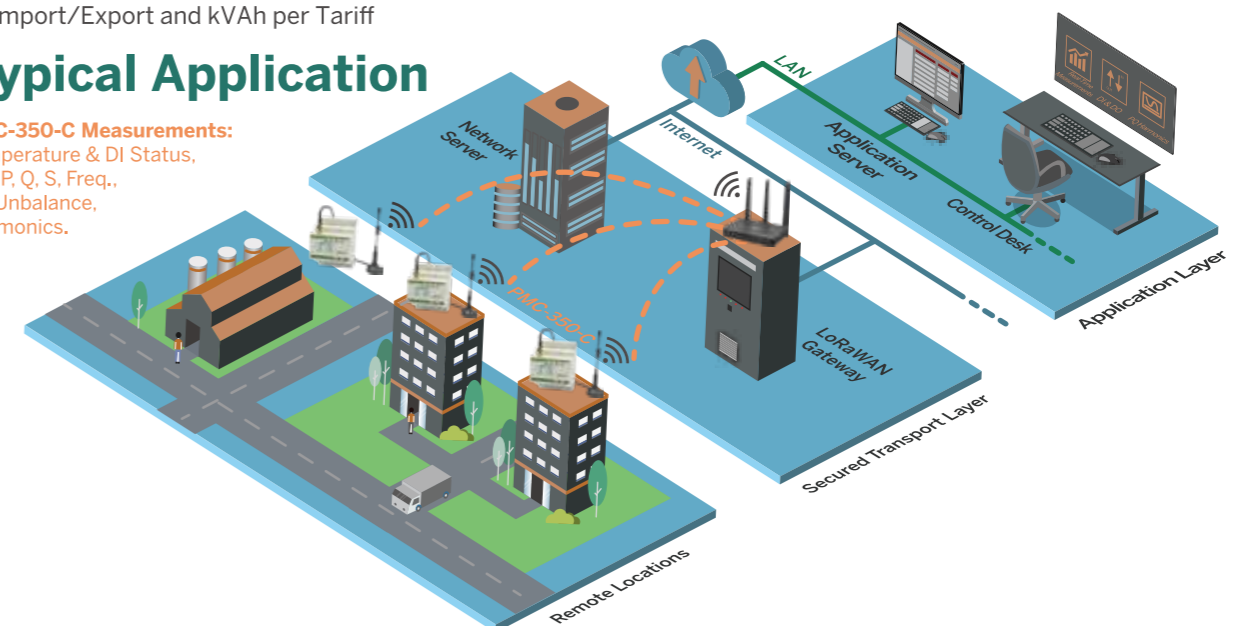
- Max./Min. Log with Timestamp for Real-time measurements
- Configurable for This Month/Last Month or Before/Since Last Reset

Monthly Energy Log

- 12 monthly recording of kWh, kvarh Import/Export/Total/Net, kVAh, kvarh Q1-Q4 as well as kWh/kvarh Import/Export and kVAh per Tariff

Typical Application

PMC-350-C Measurements:
Temperature & DI Status,
U, I, P, Q, S, Freq.,
PF, Unbalance,
Harmonics.



Daily/Monthly Freeze Log

PMC-350-C

- Daily/Monthly Log with Timestamp for kWh, kvarh, kVAh Total and Max. Demands for kW, kvar, kVA Total
- Available through Modbus and LoRaWAN communications for 60 Daily Freeze records (2 months) and 36 Monthly Freeze records (3 years)

Data Recorder

- 5 Data Recorders (16 parameters each)
- Recording interval from 1 minute to 40 days

SOE Log

- 100 events time-stamped to ±1ms resolution

Inputs and Outputs

- 4xDI + 2xDO (Mechanical Relay)
- 4xDI + 2xSS Pulse Output
- 4xRTD + 1xResidual Input*
- 2xRTD + 1xResidual Input + 2xSS Pulse Output*

* PT100 sensor & Residual CT not included

Communications

RS-485

- Optically isolated RS-485 port at 1200 to 38,400 bps
- Modbus RTU protocol
- Optional LoRaWAN support at AS923-1/2/3/4, KR920, AU915 and EU868 for IoT applications

Autonomous Data Push with the LoRaWAN option

- DevEUI (End-Device Identifier), AppEUI (Application Identifier) and AppKey (AES-128 key) for OTAA activation
- User selectable Auto-Push Data Packages of Real-time measurements, 3-phase Total and per-phase Energy, Demands, Harmonics, Max./Min. Logs, Freeze Logs, I/O and Setpoint status can be autonomously pushed to the LoRaWAN Network Server in configurable interval

* Not all measurements are available via the wireless LoRaWAN option.

Setpoints

- 10 user programmable Setpoints with extensive list of monitoring parameters including Voltage, Current, Power and THD, etc.
- Configurable thresholds, time delays and DO triggers

PMC-350-C

Three-Phase Energy Meter



- ✓ 4MB for Event & Data Recording
- ✓ Optional AS923-1/2/3/4, KR920, AU915 or EU868 LoRaWAN Module
- ✓ IEC 62053-21 Class 1 and IEC 62053-22 Class 0.5S
- ✓ Optional Split-Core CT (SCCT)
- ✓ 35 mm DIN mount with Device Dimensions @ 72x95x70 mm

Features Summary

General

Class (kWh)	1
Dimensions (mm)	72(W)x95(H)x70(D)
Display (Backlit)	B&W (No Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU (Optional LoRaWAN support at AS923-1/2/3/4/ KR920/AU915/EU868)
RS-485 Port	1
Ethernet	-
Web Server	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC61000-4-30	-
2-150kHz Conducted Emission	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current Per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Logs

SOE Log	100 entries
PQ Log	-
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	4MB

I/O

Digital Input (DI)	(4 Opt.)
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	(2 Opt.)DO or (2 Opt.)SS
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	2
IRIG-B (GPS)	-

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

- IEC 62053-21: 2020 Class 0.5 and NMI M6-1 Class 1 Certified
- Direct Input up to 63A without external CT
- Low starting Current @ 20mA

Basic Measurements

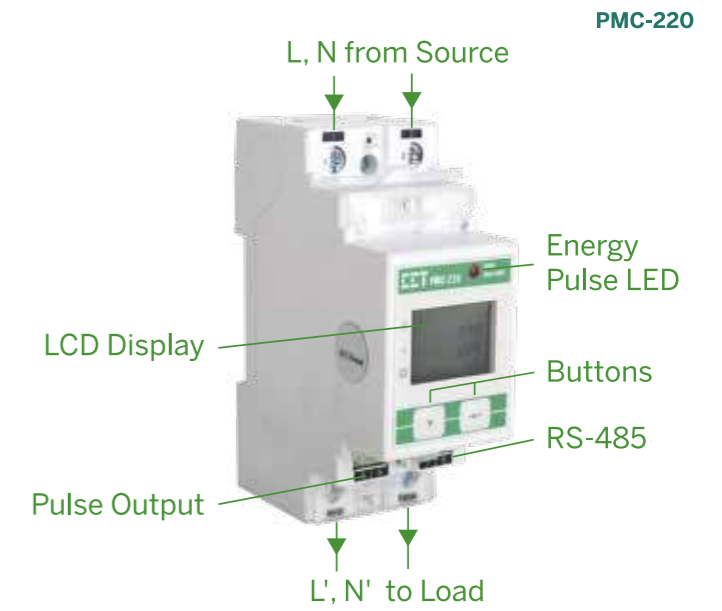
- Voltage, Current, kW, kvar, kVA, PF and Frequency
- kWh and kvarh Import/Export/Tot/Net and kVAh
- Device Operating Time (Running Hours)
- Front Panel & Communication Programming Counters

Digital Outputs

- Solid State Energy Pulse Output @ 1000 imp/kWh

Communication

- Standard RS-485 port with Modbus RTU support



Screen Captures



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5% reading	0.1V
Current	±0.5% reading	0.001A
kW, kVA	±1.0%	0.001kX
kvar	±1.0%	0.001kvar
kWh	IEC 62053-21: 2020 Class 0.5 NMI M6-1 Class 1	0.01kWh
kvarh	IEC 62053-23: 2020 Class 2	0.01kvarh
kVAh	IEC 62053-21: 2020 Class 0.5	0.01kVAh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz

Technical Specifications

Measurement Inputs (L, N, L', N')

Voltage (Un)	220VAC	230VAC	240VAC
Overrange (% Un)	120%	115%	110%
Range (V)	95-264VAC		
Current (Ib/I _{max})	5A/63A		
Starting Current (I _{st})	0.4% Ib (0.02A)		
Minimum Current (I _{min})	5% Ib (0.25A)		
Frequency	45Hz-65Hz		
Power Supply	Self-powered from 95 to 264VAC		
Maximum Wire Size	25 mm ² (4AWG)		
Torque for L, N Terminals	2.5 N.m		

Communications (D+, D-)

RS-485 (Modbus RTU)	Optically Isolated @ 5kVrms
Maximum Wire Size	1.5mm ² (16AWG)
Torque for RS-485 Terminals	0.45 N.m

Pulse Output (E+, E-)

Type	Optically Isolated Solid State Relay
Maximum Load Voltage	80 VDC
Maximum Forward Current	50 mA
Maximum Wire Size	1.5 mm ² (16AWG)
Torque for RS-485 Terminals	0.45 N.m

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Pollution Degree	2

Mechanical Characteristics

Unit Dimensions	36x65x90 mm
Shipping Weight	0.18kg
Shipping Dimensions	120x103x42 mm
Mounting	DIN Rail
IP Rating	51 (Front), 30 (Body)

Mechanical Characteristics

PMC-340

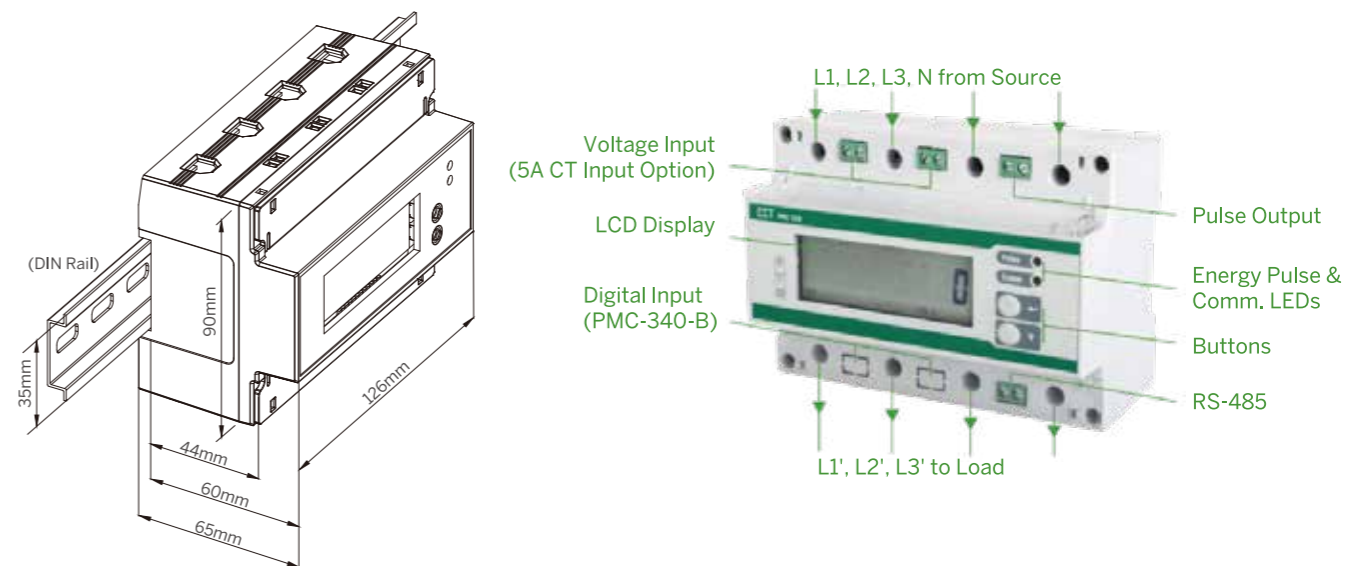
Mounting	DIN Rail
Unit Dimensions	126x90x65 mm
Shipping Dimensions	165x140x110 mm
Shipping Weight	0.68kg
IP Rating	51 (Front), 30 (Body)

Ordering Information

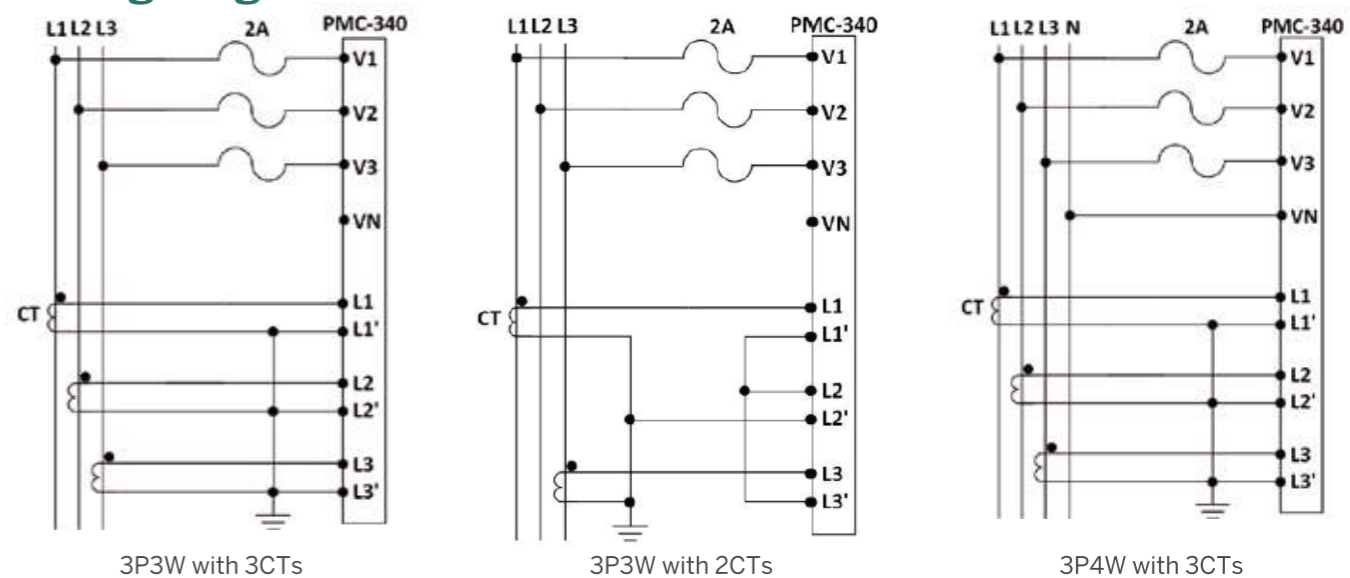
Product Code	Description
PMC-340 Digital Three-Phase Energy Meter	
Basic Function	Basic Model
	Model A + 3xDI + 2MB Log Memory
Input Current	20A (100A), Direct Input
	5A (6A), CT Input
Input Voltage	240ULN/415ULL
System Frequency	45-65Hz
Reserved	None
Communications	1xRS-485
Display Language	English
PMC-340 - A A 3 5 X A E	PMC-340-AA35XAE (Standard Model)

* Additional charges apply

Device View and Dimensions



Wiring Diagrams



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.01V
Current	±0.5%	0.001A
P, Q, S	±1.0%	0.01kW/kvar/kVA
kWh, kVAh	IEC 62053-21: 2020 Class 0.5 for 100A Direct Input IEC 62053-22: 2020 Class 0.5S for 5A CT Input	PMC-340-A: 0.1kXh PMC-340-B: 0.01kXh
kvarh	IEC 62053-23: 2020 Class 2	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz
Harmonics	IEC 61000-4-7 Class B	0.1%

Technical Specifications

Current Inputs (L1, L2, L3, N)

Voltage (Un)	220VAC	230VAC	240VAC
Overrange (% Un)	120%	115%	110%
Range (V)	168-264VAC (Self-powered)		
Burden	<10VA/phase		
Direct Current Input	Current (Ib/Imax)	20A/100A	
	Range	0.4% Ib to Imax	
	Starting Current (Ist)	0.4% Ib (0.08A)	
	Minimum Current (Imin)	5% Ib (1A)	
	Burden	<4VA/phase	
	Maximum Wire Size	35 mm ² (3 AWG)	
CT Input Option Note: Voltage input at Terminal (1, 2, 3, 4)	Current (In/Imax)	5A/6A	
	Range	(0.1%-120%) In	
	Starting Current (Ist)	0.1% In	
	Burden	<0.5VA/phase	
Frequency	45Hz-65Hz		

Digital Inputs (PMC-340B only) (Terminal 7, 8, 9, 10)

Type	Self-excited, internally wetted at 24VDC
Sampling	1000Hz

Pulse Output (Selectable - kWh/kvarh) (Terminal 5, 6)

Pulse Constant	1/10/100/500*/1000/3200/5000*imp/kWh (imp/kvarh)
Isolation	Optical
Maximum Load Voltage	80V
Maximum Forward Current	50mA
Pulse Width	60-150ms (PMC-340-A) 30-150ms (PMC-340-B)

*Available in PMC-340-B with Firmware V1.00.03 and Protocol V1.4 or later

Communications (Terminal 11, 12)

RS-485	Modbus RTU
Baud Rate	1200/2400/4800/9600/19200 bps
Maximum Wire Size	1.5mm ² (16AWG)
Maximum Torque	0.45 N.m

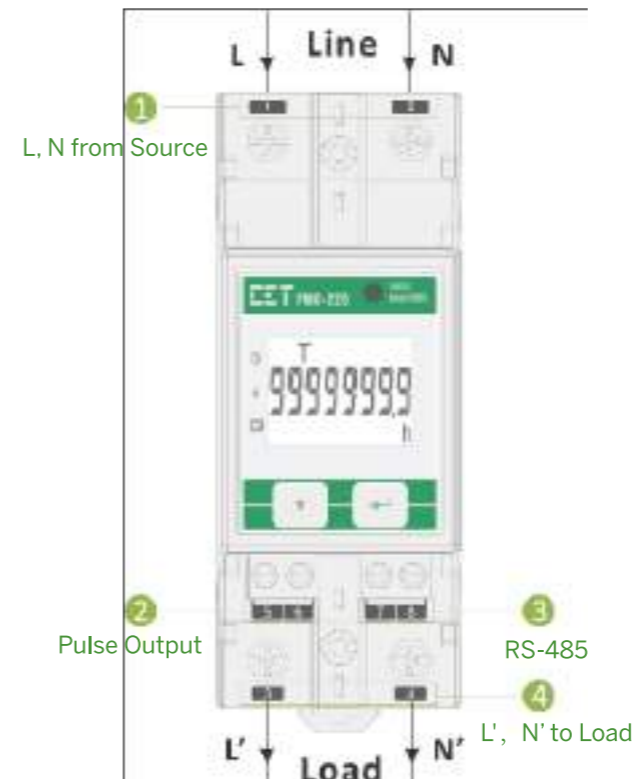
Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Pollution Degree	2

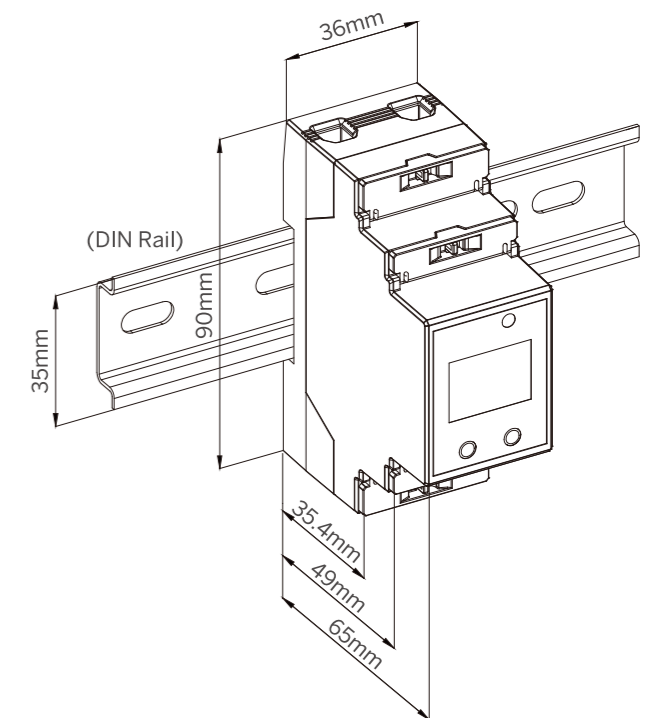
Ordering Information

Product Code	Description
PMC-220 Digital Single-Phase Energy Meter	
Input Current	C 5A (63A maximum), Direct Input
Input Voltage	3 95V-240V AC ±10%
System Frequency	5 45Hz-65Hz
Communications	A 1xRS-485
Language	E English
PMC-220 - C 3 5 A E	PMC-220-C35AE (Standard Model)

Terminals Diagram



Device View and Dimensions



PMC-230

Single-Phase Multifunction Meter (With UC3 Disconnect Relay)



- ✓ 4MB for Event & Data Recording
- ✓ NMI (Australia) Approval
- ✓ IEC 62053-21 Class 1 kWh Accuracy
- ✓ Self-powered
- ✓ Max. 63A Direct Connect Input
- ✓ UC3 Disconnect Relay (Australia NER Compliance)
- ✓ 35 mm DIN mount with Device Dimensions @ 72x90x68 mm
- ✓ 8-digit LCD Display

Features Summary

General

Class (kWh)	1
Dimensions (mm)	72(W)x90(H)x68(D)
Display (Backlit)	B&W (No Backlit)
True RMS Sampling Rate	36
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU
RS-485 Port	1
Ethernet	-
Web Server	-

Measurements

ULN per Phase & Avg.	1 Phase only
ULL per Phase & Avg.	-
Current per Phase & Avg.	1 Phase only
Neutral Current (Meas./Calc.)	-
Frequency	✓
kW per Phase & Total	1 Phase only
kvar per Phase & Total	1 Phase only
kVA per Phase & Total	1 Phase only
PF per Phase & Total	1 Phase only
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	-

Logs

SOE Log	32 entries
PQ Log	-
Energy Log	✓
Max./Min. Log	-
On-board Log Memory	4MB

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	-
TEHD Voltage & Current	-
K-Factor	-
Individual Harmonics	-
Voltage/Current Unbalance	-
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC61000-4-30	-
2-150kHz Conducted Emission	-

I/O

Digital Input (DI)	3
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	1SS
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	1
IRIG-B (GPS)	-

(Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

Basic Measurements

- True RMS Measurement
- Voltage, Current, kW, kvar, kVA, PF, Phase Angle and Frequency
- Per Phase and Total kWh and kvarh Import/Export/Tot/Net and kVAh
- 4-Quadrant kvarh
- Device Operating Time (Running Hours)
- Voltage and Current THD, TOHD, TEHD, Individual Harmonics up to 31st and Unbalance
- Current K-Factor, Crest Factor, TDD, TDD Odd and TDD Even
- I1, I2, I3, kW/kvar/kVA Total Demands and Maximum Demands
- Max./Min. Log
- 12 monthly recording of kWh/kvarh Import/Export/Tot/Net, kVAh, kvarh Q1-Q4 as well as kWh/kvarh Import/Export and kVAh per Tariff
- Two TOU schedules, each providing:
 - 12 Seasons
 - 20 Daily Profiles, each with 12 Periods in 15-minute interval
 - 90 Holidays or Alternate Days
 - 4 Tariffs, each providing the following information
 - kWh/kvarh Import/Export, kVAh
 - kW/kvar/kVA Maximum Demands

Real-Time Clock

- Battery-backed Real-time clock @ 6ppm
- Clock error ≤ 0.5s/day

Data and Event Recorders

Data Recorder Log (PMC-340-B Only)

- 2MB Log Memory
- 16 measurements @ 10-minute interval for 197 days

SOE Log

- 16 SOE events time-stamped to 1ms resolution

Inputs and Outputs

Digital Inputs (PMC-340-B Only)

- 3 channels for external status monitoring and pulse counting
- Self-excited, internally wetted at 24VDC

Pulse Outputs

- 1 Front Panel LED and 1 Solid State Pulse Output for energy pulsing application

Communications

- Optically isolated RS-485 port, baud rate from 1,200 to 19,200 bps
- Modbus RTU protocol

Appearance

Unit: mm



Current Terminals

Voltage/IO Terminals

PMC-340

Three-Phase Energy Meter



- ✓ 2MB Memory for Event & Data Recording (PMC-340-B Only)
- ✓ NMI (Australia) Approval
- ✓ IEC 62053-21: 2020 Class 0.5 kWh Accuracy for 100A Direct Input and IEC 62053-22: 2020 Class 0.5S Standards for 5A CT Input
- ✓ Self-powered
- ✓ Max. 100A Direct Connect Input or 5A CT Input
- ✓ 35 mm DIN mount with Device Dimensions @ 126x90x65 mm
- ✓ 8-digit LCD Display

Features Summary

General

Class (kWh)	0.5 for 100A Direct Input, 0.5S for 5A CT Input
Dimensions (mm)	126(W)x90(H)x65(D)
Display (Backlit)	B&W (No Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU
RS-485 Port	1
Ethernet	-
Web Server	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	Calc.
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	-

I/O

Digital Input (DI)	(3 Opt.)
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	1SS
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	1
IRIG-B (GPS)	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC61000-4-30	-
2-150kHz Conducted Emission	-

Logs

SOE Log	16 entries (Opt.)
PQ Log	-
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	(2MB Opt.)

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

- IEC 62053-21 Class 1 and NMI M6-1 Certified by UL
- Direct Input up to 63A with UC3 Disconnect Relay
- Low starting Current @ 20mA

Basic Measurements

- U, I, P, Q, S, PF, Frequency and Operating Time
- kWh and kvarh Import/Export and kVAh
- Two TOU schedules with 4 Seasons, 12 Daily Profiles and 4 Tariffs
- Demands and Maximum Demands for U, I, P/Q/S with Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)
- U and I THD

UC3 Disconnect Relay (Internal)

- UC3 Compliant Disconnect Relay that can be activated locally from the Front Panel or remotely via communication

Data and Event Recorders

Data Recorder

- 4MB Log Memory, capable of recording 16 parameters at 5-minute interval for 6 months
- One Data Recorder Log of 16 parameters
- Recording Interval from 1 second to 40 days
- Configurable Depth (maximum 65535) and Recording Offset

- Available parameters: U, I, P, Q, S, PF, Freq., kWh Import/Export, kvarh Import/Export, Demands and Maximum Demands for U, I, P/Q/S Total, DI Pulse Counters and Relay Status

Monthly Energy Log

- 12 historical monthly logs of kWh/kvarh Import/Export and kVAh as well as kWh/kvarh Import/Export and kVAh per Tariff

SOE Log

- 32 events time-stamped to ±1ms resolution

Inputs and Outputs

Digital Inputs

- 3 channels for external status monitoring and pulse counting
- Self-excited, internally wetted at 12VDC
- 1,000Hz sampling

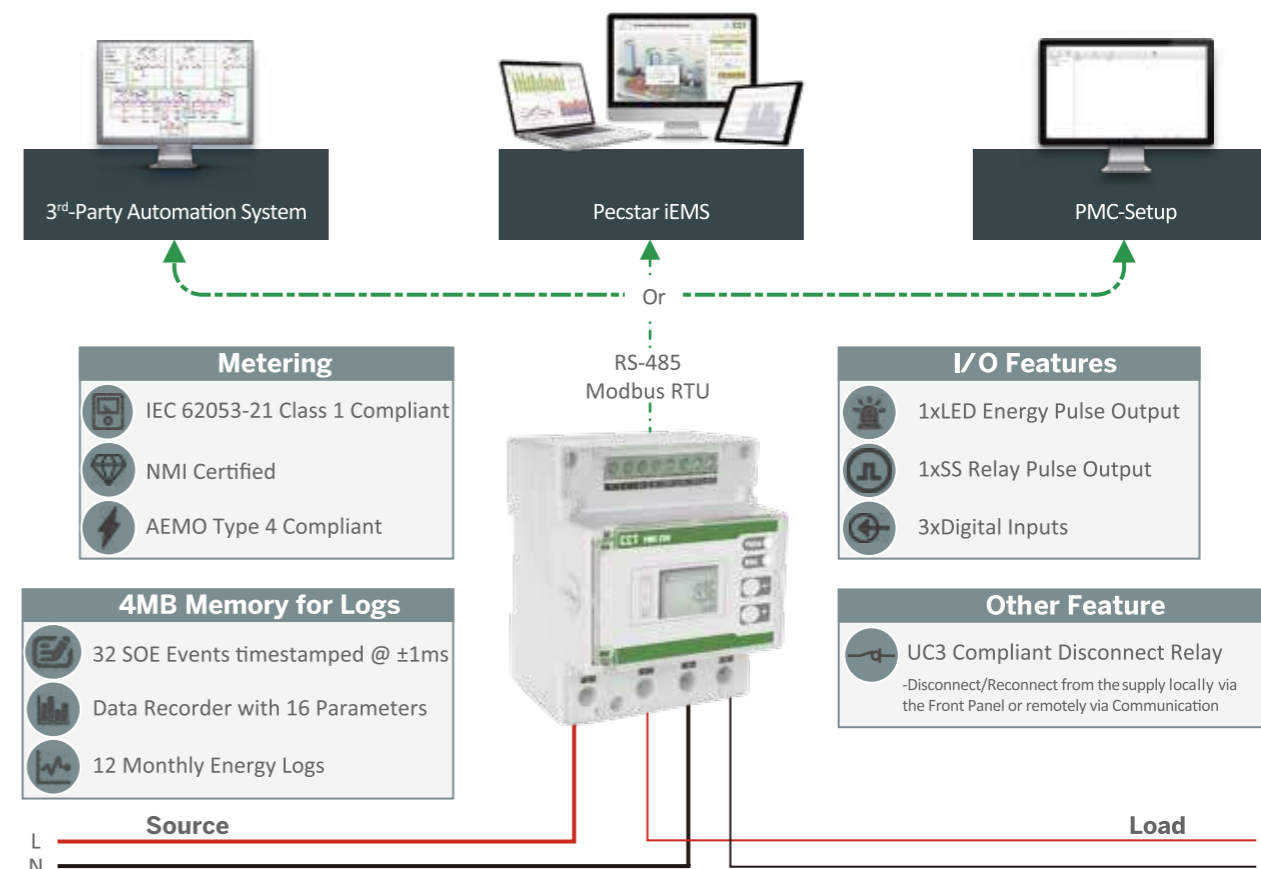
Energy Pulse Outputs

- 1xLED Energy Pulse Output on the Front Panel
- 1xSolid State Relay Energy Pulse Output

Communications

- Optically isolated RS-485 port at 1,200 to 19,200 bps
- Modbus RTU protocol with configurable password protection

Typical Application



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.1V
Current	±0.5%	0.001A
P, Q, S	±1.0%	0.001kW/kvar/kVA
kWh	IEC 62053-21 Class 1	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz

Technical Specifications

Measurement Inputs (L, N, L', N')

Voltage (Un)	220VAC	230VAC	240VAC
Overrange (% Un)	120%	115%	110%
Range	95-264VAC		
Burden	<3VA		
Current (Ib/I _{max})	5A/63A		
Starting Current	0.4% Ib (20mA)		
Minimum Current	5% Ib (0.25A)		
Burden	<3VA		
Frequency	50Hz/60Hz		
Power Supply	Self-powered from 95 to 264VAC		
Maximum Wire Size	25 mm ² (4AWG)		
Torque for L, N Terminals	2.5 N.m		

UC3 Disconnect Relay

Rated Load (Resistive)	100A @ 250VAC
Response Time	20ms
Short-time Overcurrents	7000A (-10% to +0%) @ 60ms
Service Life (Mech./Elec.)	100k/5k Operations
Rated Making Capacity @ 1.15Un and PF=1	63A maximum
Rated Breaking Capacity @ 1.15Un and PF=1	63A maximum
Dielectric (AC Voltage)	4kV @ 1minute (Contact to Coil), 2kV @ 1minute (Contact to Contact)
Insulation Resistance	1000MΩ/500VDC

Communications (D+, D-)

RS-485 (Modbus RTU)	Optically Isolated @ 5kVrms
Maximum Wire Size	1.5 mm ² (16AWG)
Torque for RS-485 Terminals	0.45 N.m

Digital Inputs (DI1, DI2, DI3, DIC)

Type	Dry Contact, 12VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

SS Pulse Output (E+, E-)

Type	Optically Isolated Solid State Relay
Maximum Load Voltage	80 VDC
Maximum Forward Current	50 mA
Maximum Wire Size	1.5 mm ² (16AWG)
Torque for Terminals	0.45 N.m

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Pollution Degree	2

Mechanical Characteristics

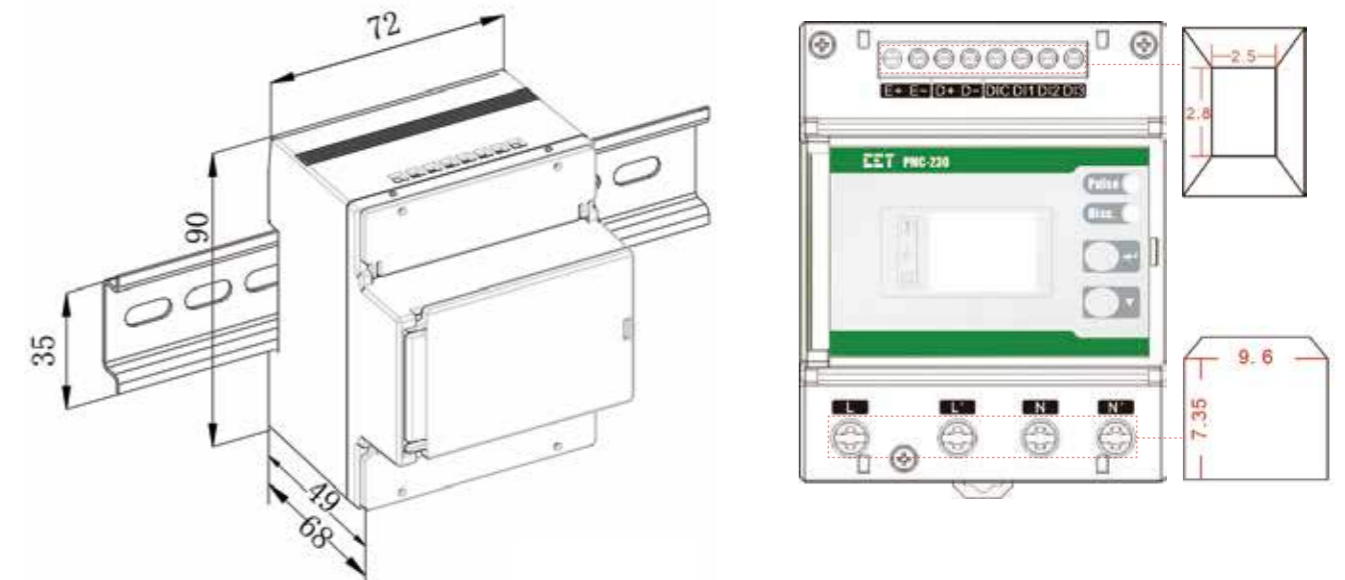
Unit Dimensions	72(W)x68(D)x90(H) mm
Mounting	DIN Rail
IP Rating	51 (Front), 30 (Body)

Ordering Information

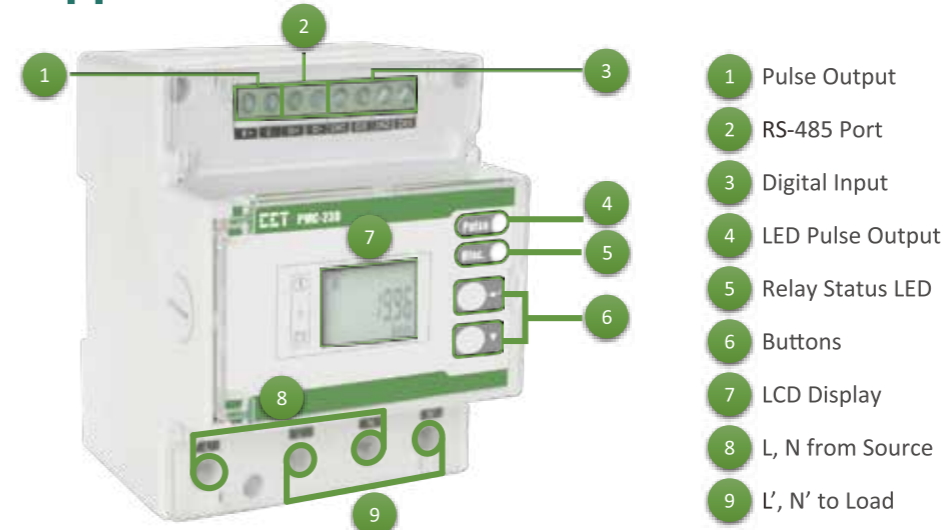
Product Code	Description
PMC-230	PMC-230 Single-Phase Multifunction Energy Meter
Basic Function	B
Input Current	C
Input Voltage	3
System Frequency	5
Communications	A
Language	E
PMC-230	- B C 3 5 A E
	4MB Memory, 1xData Recorder, 3xDI, 1xLED Pulse Output, 1xSS Pulse Output, 1xRS-485 and an internal UC3 Compliant Disconnect Relay
	5A (63A maximum), Direct Input
	95V-240VAC ±10%
	50Hz/60Hz
	1xRS-485
	English
	PMC-230-BC35AE (Standard Model)

Device View and Dimensions

Unit: mm



Appearance



Accuracy

Parameters	Accuracy	Resolution
Mains Voltage	±0.2%	0.01V
Mains I1-I4	±0.2%	0.001A
kW, kVA, kvar	IEC 62053-22 Class 0.5S for Mains IEC 62053-21 Class 1 for Branches	0.001kX
kWh, kVAh		0.1kXh
kvar, kvarh	IEC 62053-23 Class 2	0.001kvar/0.1 kvarh
PF	1%	0.001
Frequency	±0.02Hz	0.01Hz
Harmonics	IEC 61000-4-7 Class B	0.01%
K-Factor	IEC 61000-4-7 Class B	0.01
RTD	±1°	0.1°

Technical Specifications

Main Voltage Inputs (V1, V2, V3, VN)

Standard (Un)		277ULN/480ULL
Range		10% to 120% Un
PT Ratio	Mains I/II-Primary	1-1,000,000V
	Mains I/II-Secondary	1-480V
Overload		2xUn continuous, 4xUn for 1s
Burden		< 0.05VA @ 277ULN per phase
Frequency		45-65Hz

Branch Inputs

CT Ratio		400 maximum
Burden		<0.05VA per phase
Starting Current		0.2% Imax
Solid-Core CT Strip	100A	In=100A, Imax=100A, Range=0.2-100%
	5A	In=5A, Imax=100A, Range=1-100%
Split-Core CT	100A	In=100A, Imax=120A, Range=5-120%
	200A	In=200A, Imax=240A, Range=5-120%
	400A	In=400A, Imax=480A, Range=5-120%
	800A	In=800A, Imax=960A, Range=5-120%
	1600A	In=1.6kA, Imax=1.92kA, Range=5-120%
Solid-Core CT	400A	In=400A, Imax=480A, Range= 5%-120%
	800A	In=800A, Imax=960A, Range= 5%-120%

Mains Current Inputs (I11, I12, I21, I22, I31, I32, I41, I42)

I Nominal (In)	5A/1A (CT rated Input)
Range	1% to 120%
Starting Current	0.3% of In
CT Ratio	6000 maximum for 5A, 30000 maximum for 1A
Overload	1.2xIn continuous, 10xIn for 1s
Burden	<0.3VA per phase

Power Supply for Main Unit (L+, N-)

Standard	95-277VAC/DC, ±10%, 47-440Hz
Burden	<6W

Digital Inputs (DI1, DI2, DIC)

Type	Dry contact, 24VDC internally wetted
Sampling	1000Hz
Debounce	1-9999 ms programmable

Optional Residual Current Inputs (-IR, IR)

Range	20mA-2000mA
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Optional Solid State Energy Pulse Output (E1+, E1-, E2+, E2-) Selectable kWh/kvarh

Pulse Constant	10/100/1000/3200 imp/kxh
Isolation	Optical
Max. Load Voltage	80V
Max. Forward Current	50mA
Pulse Width	80±20ms

Environmental Conditions

Operating Temp.	-25°C to 70°C
Storage Temp.	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Pollution Degree	2

Communications

RS-485 (Standard)	Protocol	Modbus RTU
	Baud Rate	1200/2400/4800/9600/19200/38400 bps
LoRaWAN (Optional)	LoRaWAN™ Specification 1.0.2 Class A/C Compliance	
ISM Bands (Optional)	S923-1/2/3/4, KR920, AU915 or EU868 Applicable to the following Regions: AS923-1: Australia, New Zealand, Malaysia, Hong Kong, Singapore, Taiwan, Thailand, Cambodia, etc. AS923-2: Vietnam, Indonesia AS923-3: Denmark, Norway, Saudi Arabia, etc. AS923-4: Israel EU868: Europe, United Arab Emirates, etc. KR920: South Korea AU915: Australia, New Zealand, Argentina, Anguilla, Brazil	

Ordering Information

Product Code Description

PMC-350 3-Phase LoRaWAN DIN Energy Meter																	
Basic Function	C							Multifunction Measurements, LCD Display, 1xRS-485									
Input Current	5~								5A (Class 0.5S)								
	SCCT								40mA Input for use with 50A/40mA, 100A/40mA, 200A/40mA, 400A/40mA, 800A/40mA or 1600A/40mA SCCTs (SCCTs not included)								
	SCCTA								2mA Input for use with 5A/2mA SCCT (SCCTs not included)								
Input Voltage		5								277ULN/480ULL + 20% (1P2W ULN, 1P2W ULL, 1P3W, 3P3W, 3P4W, Demo)							
Power Supply			2								95-250 VAC/VDC, 47-440Hz						
			4^								95-480 VAC/VDC, 47-440Hz						
Frequency				5								45-65Hz					
Expansion 1*						N						None					
						A						4xDI + 2xDO (Mechanical Relay)					
						B						4xDI + 2xSS Pulse Output					
Expansion 2*							N						None				
							T						4xRTD + 1xResidual Input				
							X#						2xRTD + 1xResidual Input + 2xSS Pulse Output				
Expansion Communication*								N						None			
								1						LoRaWAN @ EU868 with External Antenna			
								4						LoRaWAN @ AU915 with Internal Antenna			
								5						LoRaWAN @ AU915 with External Antenna			
								6						LoRaWAN @ AS923-1/2/3/4 with Internal Antenna			
								7						LoRaWAN @ AS923-1/2/3/4 with External Antenna			
Language										E						English	
PMC-350	-	C	SCCT	5	2	5	N	N	7	E						PMC-350-CSCCT525NN7E (Standard Model)	

* Additional charges apply.

~ Input Current "5" is only available with Power Supply "4" + Expansion 1 "N" + Expansion 2 "X". Expansion Communication options are unrestricted.
 ^ Power Supply "4" is only available with Expansion 1 "N" + Expansion 2 "X". Input Current options and Expansion Communication options are unrestricted.

Expansion 2 "X" is only available with Power Supply "4" + Expansion 1 "N". Input Current options and Expansion Communication options are unrestricted.

Accessories

External Split-Core CTs

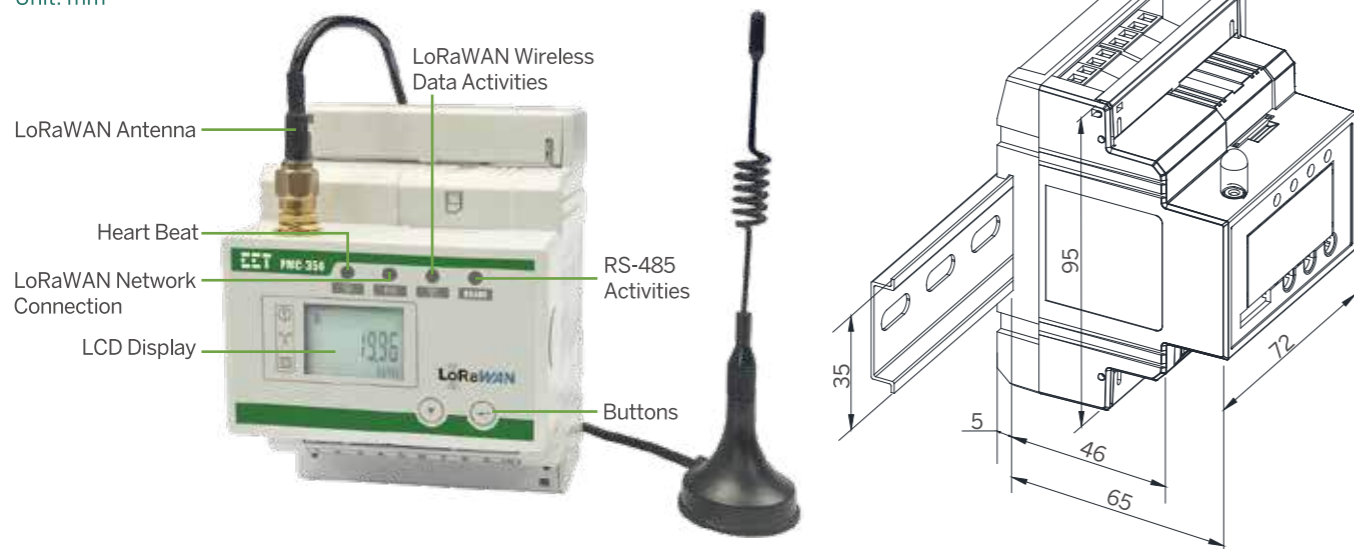
	Specification	Accuracy	Aperture	Cable Length
PMC-SCCT-5A-2mA-16-A	5A/2mA, 1-phase Split-Core CT with Pluggable Connector	1.0	Ø16mm	2m
PMC-SCCT-50A-40mA-16-A	50A, 1-phase Split-Core CT with Pluggable Connector	1.0	Ø16mm	2m
PMC-SCCT-100A-40mA-16-A	100A, 1-phase Split-Core CT with Pluggable Connector	0.5	Ø16mm	2m
PMC-SCCT-200A-40mA-24-A	200A, 1-phase Split-Core CT with Pluggable Connector	0.5	Ø24mm	2m
PMC-SCCT-400A-40mA-35-A	400A, 1-phase Split-Core CT with Pluggable Connector	0.5	Ø35mm	2m
PMC-SCCT-800A-40mA-A	800A, 1-phase Split-Core CT with PMC-BCC-350-2	0.5	80x50mm	Not included
PMC-SCCT-1600A-40mA-A	1600A, 1-phase Split-Core CT with PMC-BCC-350-2	0.5	130x55mm	Not included

Product Name	Part Number	Specification
Cable for 1600A Split-Core CT	PMC-BCC-350-2	2m with 2-Pin Black Pluggable Connector for 1600A SCCT
DIN Panel Mounting Adapter	PMC-PMA-4	Panel Mounting Adapter for 4P DIN Rail Mounting devices

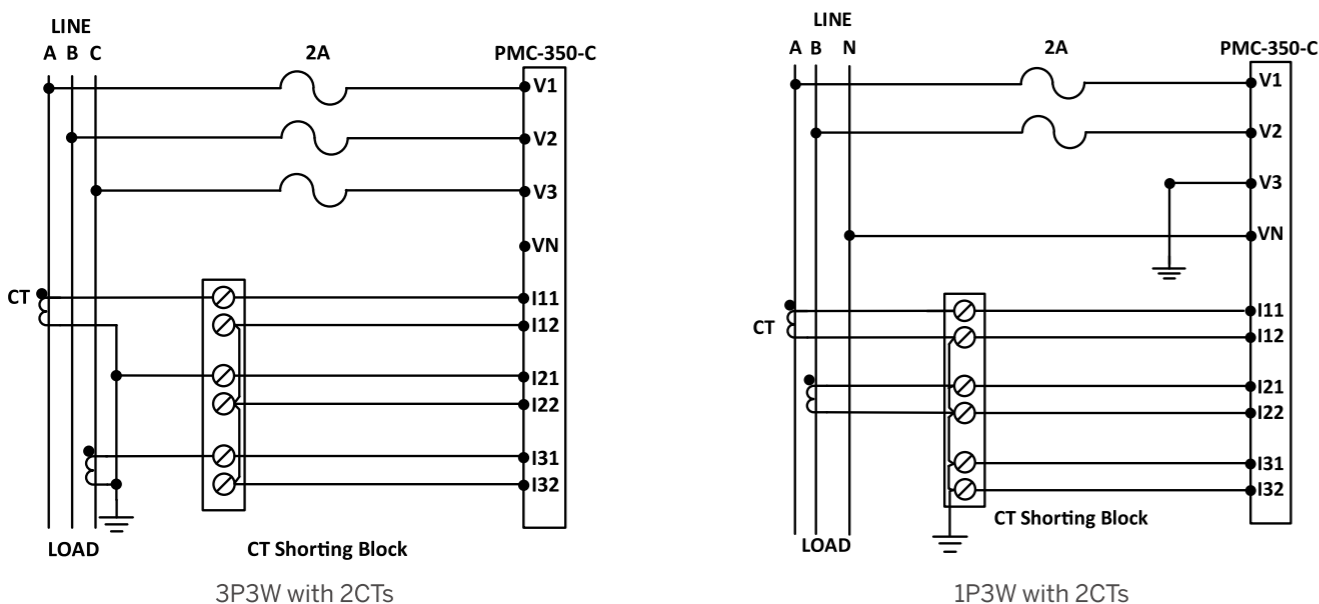
- 1) Please refer to Cable Length for details and contact the factory in advance for special requirements
- 2) One PMC-350-C can be equipped with 3 pcs of SCCT
- 3) "PMC-PMA-4" is only applicable for the PMC-350-C with Internal Antenna.

Device View and Dimensions

Unit: mm



Wiring Diagrams



Typical Application

Base Unit

2xMains Inputs, each with 3-phase Voltages and 4-phase Currents
 Up to 4 CT Branches with a maximum 21 CTs per Branch
 2xDI, 2xDO, 2xRTD Inputs
 1xRS-422/485 & 1xRS-485 with Modbus RTU
 1x100BaseT with Modbus TCP and SNMP
 Power Supply: 95-277VAC/VDC ±10%, 47-440Hz
 Burden: <6W

Optional HMI

7" Color Touch-Screen TFT
 LCD with LED Backlight
 Power Supply: 24VDC ±20%
 Burden: <10W

Branch Split-Core CT

For retrofit applications
 100A, 200A, 400A, 800A and 1600A CTs
 Imax: 120% In
 Starting Current: 0.2% Imax
 Burden: <0.05VA per phase

CT Strip

Up to 4 Branch Circuits
 with 3/4" or 1" CT spacing
Option I:
 12x100A or 21x100A Solid-Core
 100A maximum
 Starting Current: 200mA
 Overload: 500A for 1s
 Burden: < 0.5VA per phase
Option II:
 12x5A or 21x5A Solid-Core CTs
 5A nominal, 10A maximum
 Programmable CT Ratio
 Starting Current: 20mA
 Overload: 100A for 1s
 Burden: < 0.5VA per phase

Branch Circuit Cable

High Quality, Rugged and Reliable
 Cable Length: 0.4m, 1m, 1.8m, 3m, 6m, 10m

Adapter Board

Split-Core CT Adapter Board to simplify
 wiring termination



Communications

P1, P2 (RS-485 ports)

- Optically isolated
- 1,200 to 38,400 bps
- Modbus RTU
- Support up to two HMIs simultaneously

P3 (Ethernet Port)

- 10/100BaseT
- Modbus TCP
- HTTP, SMTP, SNMP, SNMP

PQ Metering

Mains Inputs

- U and I Unbalance based on Sequence Components
- THD, TOHD, TEHD and Individual harmonics to 31st
- Current TDD, Crest Factor and K-Factor
- Dips/Swells and Interruptions Detection with Waveform Recording

Mains

- U and I Unbalance based on Sequence Components
- THD, TOHD, TEHD and Individual harmonics to 31st
- TDD, Crest Factor and K-Factor
- Current TDD, K-Factor and Crest Factor
- Dips/Swells and Interruptions detection with Waveform Recording

Waveform Recorder for Mains Inputs

- Support up to 16 WFR Log entries
- Record U1-U3 and I1-I3 for both Mains-I and Mains-II
- Programmable resolutions (Samples/Cycle x # of Cycles) at 64x150, 64x75, 32x300, 32x150, 16x600 and 16x300
- Triggered by the following alarms: Dips, Swells and Interruptions

Branch Inputs

- Current THD per Branch Circuit



PMC-352

Three-Phase Energy Meter



- ✓ 8KB Memory for Event Recording
- ✓ Optional LoRa (860-935 MHz) Module
- ✓ IEC 62053-21 Class 1 and IEC 62053-23 Class 2
- ✓ Optional Split-Core CT (SCCT)
- ✓ 35 mm DIN mount with Device Dimensions @ 36x90x65 mm

Features Summary

General

Class (kWh)	1
Dimensions (mm)	36(W)x90(H)x65(D)
Display (Backlit)	-
True RMS Sampling Rate	64
Battery-backed Real-time Clock	-
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU (Built-in LoRa with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925)
RS-485 Port	1
Ethernet	-
Web Server	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current Per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	-
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	Dmd. Only
Maximum Demands	-
Setpoints	✓

I/O

Digital Input (DI)	3
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	-
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	-
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	-
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

Logs

SOE Log	16 entries
PQ Log	-
Energy Log	-
Max./Min. Log	-
On-board Log Memory	8KB

(Opt.)-Optional (Meas./Calc.)-Measured Value/Calculated Value

Main Features

Metering

- Wireless IoT energy metering with the LoRa technology
- Long-Range wireless communication capability

Basic Measurements

- ULN, ULL and I per Phase and Average
- P, Q, S and PF per Phase and Total
- kWh, kvarh Import/Export/Net/Total and kVAh Total
- Frequency and Device Operating Time (Running Hours)

Advanced Measurements

- U and I THD, TOHD, TEHD and Individual Harmonics up to 31st
- U and I Unbalance and Phase Angle
- Fundamental P and Displacement PF
- kvarh Q1-Q4
- Present Demands for kW/kvar/kVA Total and per Phase Current

Data and Event Recorders

SOE Log

- 16 events time-stamped to ±1ms resolution
- Setup changes, Setpoint, DI Status changes, Clear actions, etc.

Inputs and Outputs

Digital Inputs

- 3xDI for Status Monitoring or Utility Pulse Counting

Temperature Monitoring

- 4xNTC Inputs for Temperature Monitoring (sensor not included)

Communications

- Optically isolated RS-485 port at 1,200 to 38,400 bps
- Built-in LoRa with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925
- Modbus RTU protocol

Diagnostics

- Frequency Out-of-Range, Loss of Voltage/Current
- kW Direction per Phase and Total, Possible incorrect CT Polarity
- Incorrect U & I Phase Sequence

Setpoints

- 10 user programmable Setpoints with extensive list of monitoring parameters including Voltage, Current, Power and THD, etc.
- Configurable thresholds, time delays and parameters

Main Features

Metering

The PMC-592 features high-accuracy measurements for two Mains Inputs, each supporting 3 Voltage and 4 Current Inputs with the following measurements

Mains Inputs Measurements

- True RMS measurements
- ULN and ULL per Phase and Average
- I per Phase and Average, measured Neutral Current
- kW, kvar, kVA, PF per Phase and Total
- Frequency
- Loading Factor per Phase and Average
- kWh Import/Export, kvarh Import/Export, kVAh Total
- Dual Tariff energy accumulation

Branch Circuits Measurements

Current Input provides the following measurements:

- 21, 42, 63 or 84 Branch Current Inputs. Each Branch
- I, kW, kvar, kVA, PF, Loading Factor, kWh, kvarh, kVAh and Maximum Demand with Timestamp

Flexible Configuration

PMC-592 is designed to facilitate flexible installation in a compact and high-density environment with programmable CT Ratio and Polarity, Phase or Line Reference Voltage, 2-Ø and 3-Ø Sub-Meter Grouping, CT Strip Installation Mode and Orientation as well as the following features to make site installation a breeze.

- Flexible Configuration of CT Ratio and Polarity Facilitates Site Installation
- Support common panel arrangements such as Single Panel Mode, Dual Panel Mode and 1-phase 3-Wire configuration
- A single PMC-592 can be used to monitor two PDUs, each with one Mains and 42 Branch Circuits
- Any Branch Current Input can be paired with any Phase or Line Voltage
- Flexible configuration for 2-Ø and 3-Ø Sub-Meter Grouping to eliminate wiring mistakes at site that would cause the complete breakdown of sub-meter calculations due to rigid ordering for 2-Ø and 3-Ø Sub-Meter wiring offered by other competitors

Data and Event Recorders

Data Recorder

- 1GB On-board log Memory
- 10 Data Recorders of 64 parameters each for a total of 640 Real-time parameters
- Programmable Log Depth: 65535 maximum and Recording Interval (60-345600s)

Interval Energy Recorder

- Complete energy profiling of two Mains, 1-Ø, 2-Ø and 3-Ø Sub-Meters, Virtual Meters for Tariffs T1 and T2
- Programmable Interval at 5, 10, 15, 30 or 60 minute Interval

- Fixed Log Depth at 10,000 entries, enough to record:
 - a. 1 month @ 5-minute
 - b. 2 months @ 10-minute
 - c. 3 months @ 15-minute
 - d. 6 months @ 30-minute
 - e. 12 months @ 60-minute

Max./Min. Recorder

- Mains: U, I, Frequency, kW, kvar, kVA, Loading Factor, PF, Unbalance, THD, TOHD, TEHD
- RTD1 and RTD2
- 1-Ø Sub-Meters: I, kW, kvar, kVA, PF, Loading Factor and I THD
- 2-Ø and 3-Ø Sub-Meters: I, kW, kvar, kVA, PF and Loading Factor
- Max./Min. Timestamp for This Month & Last Month (or Since Last Reset & Before Last Reset)

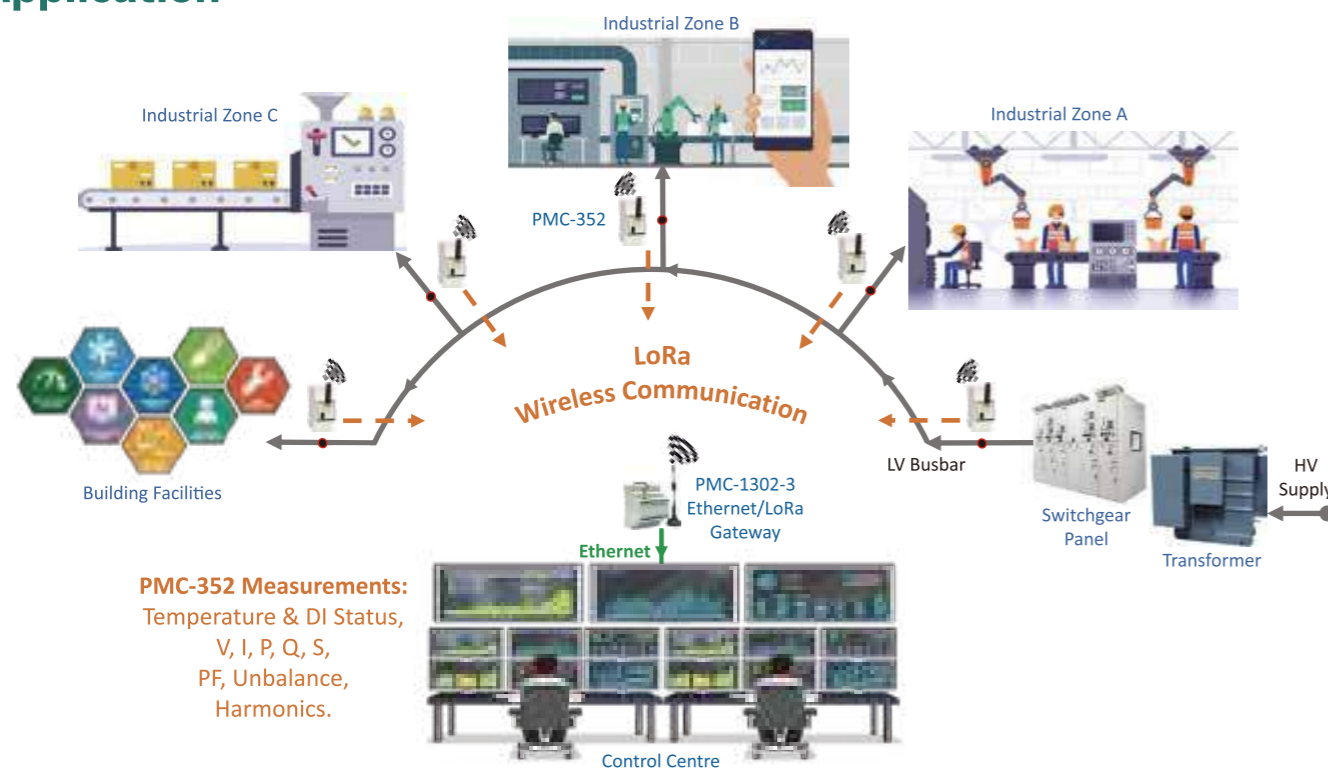
Waveform Recorder (WFR)

- Support up to 16 WFR Log entries
- Record V1-V3 and I1-I3 for both Mains-I and Mains-II
- Programmable resolutions (samples/cycle x # of cycles) at 64x150, 64x75, 32x300, 32x150, 16x600 and 16x300
- Triggered by Dip/Swell and Interruption

SOE Log & Alarm Monitoring

- 1000 events time-stamped to ±1ms resolution
- Alarm Summary At-A-Glance
- Global Alarm Output
- 4 Alarm Levels: HH, H, L and LL
- All alarms are recorded in the SOE Log

Application



PMC-352 Measurements:
 Temperature & DI Status,
 V, I, P, Q, S,
 PF, Unbalance,
 Harmonics.

PMC-592

Multi-Circuit Power Monitor



- ✓ 1GB Non-Volatile Log Memory
- ✓ IEC 62053-22 Class 0.5S (Mains)
- ✓ IEC 62053-21 Class 1 (Branches)
- ✓ Optional 7" Touch-Screen HMI
- ✓ One Ethernet and dual RS-485 Ports
- ✓ Monitor 2 Mains Circuits and up to 84 Branch Circuits
- ✓ Support 1-Ø, 2-Ø and 3-Ø Sub-Metering
- ✓ Programmable Data Recording

Features Summary

General

Class (kWh)	0.5S
Dimensions (mm)	260.5(W)x154(H)x55.5(D)
Display (Backlit)	Optional Color TFT 800x480 (Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, Modbus TCP, HTTP SNMP, SNTIP, SMTP
RS-485 Port	2
Ethernet	1
Web Server	✓

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	Meas.
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	✓
Maximum Demands	✓
Setpoints	✓

Logs

SOE Log	1000 entries
PQ Log	-
Energy Log	✓
Max./Min. Log	✓
On-board Log Memory	1GB

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	✓
Dip Swell Detection	✓
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

I/O

Digital Input (DI)	2
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	2DO
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	-

(Meas./Calc.)-Measured Value/Calculated Value

Accuracy Parameters

	Accuracy	Resolution
Voltage	±0.5%	0.0001V
Current	±0.5%	0.0001A
kW, kvar, kVA	±1.0%	0.0001kW/kvar/kVA
kWh	IEC 62053-21 Class 1	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	±1.0%	0.0001
Frequency	±0.02Hz	0.0001Hz
THD	IEC 61000-4-7 Class B	0.0001%
Temperature	±1°C	0.001°C

Technical Specifications

Voltage Inputs (V1, V2, V3, VN)

Voltage (Un)	277ULN/480ULL
Range	40V to 1.2Un (88V to 550V for Self-Powered option)
Burden	<0.02VA/phase
Frequency	45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

	SCCT Option	SCCTA Option
Current (In)	40mA	2mA
Range	0.15%-100% In	0.1%-120% In
Starting Current	0.15% In	0.2% In
External SCCTs	100A/40mA	5A/2mA
	200A/40mA	
	400A/40mA	
	800A/40mA	
	1600A/40mA	

Power Supply (L+, N-)

Standard	60-264VAC/DC, ±10%, 47-440Hz
Optional	88V-550VAC, Self-Powered via Uca (U31)
Burden	<2W

Digital Inputs (DI1, DI2, DI3, DIC)

Type	Dry contact, 12VDC internally wetted
Sampling	1000Hz
Hysteresis	1ms minimum

NTC Temperature Inputs (TC1, TC2, TC3, TC4)

NTC Type	2-Wire Thermistors (sensor not included)
Measurement Range	-20°C to 140°C

Communications

RS-485 (Standard)	Protocol	Modbus RTU
	Baud Rate	1200/2400/4800/9600/19200/38400 bps
	RF Range	860-935 MHz (Configurable)
	ISM Bands	EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925
LoRa	RF Output Power	19 dBm (Maximum)
	Receiver Sensitivity	-137 dBm (Maximum)
	Output Watts	0.03 (Typical)
	FCC Part 15C	Certified by TCB

Mechanical Characteristics

Unit Dimensions	36(W)x65(D)x90(H) mm
Mounting	DIN Rail
IP Rating	30

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric pressure	70 kPa to 106 kPa
Pollution Degree	2

Ordering Information

Product Code	Description
PMC-352 3-Phase Wireless DIN Rail Energy Meter	
Basic Function	C Multifunction Measurements, 1xRS-485
Input Current	A 40mA Input for use with 100A/40mA, 200A/40mA, 400A/40mA, 800A/40mA or 1600A/40mA SCCTs (SCCTs not included)
	B 2mA Input for use with 5A/2mA SCCT (SCCTs not included)
Input Voltage	3 277ULN/480ULL ±15%
Power Supply	2 60-264VAC/DC, 47-440Hz
	N* 88-550VAC, Self-Powered from Uca (or U31)^
Frequency	5 45-65Hz
I/O	A 3×DI
	N None
Expansion Communication*	7* LoRa (860-935 MHz) configurable for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925
	E English
PMC-352	C A 3 2 5 A N E PMC-352-CA325ANE (Standard Model)


* Additional charges apply

^ The Self-Powered option is only supported for 3-phase power system. If the PMC-352 is used in a single-phase application, Power Supply option 2 should be selected

Accessories

Split-Core CTs	Specification	Accuracy	Diameter	Cable Length
PMC-SCCT-5A-2mA-16-A	5A/2mA, 1-phase Split-Core CT with Pluggable Connector	1.0	Ø16mm	2m
PMC-SCCT-100A-40mA-16-A	100A, 1-phase Split-Core CT with Pluggable Connector	0.5	Ø16mm	2m
PMC-SCCT-200A-40mA-24-A	200A, 1-phase Split-Core CT with Pluggable Connector	0.5	Ø24mm	2m
PMC-SCCT-400A-40mA-35-A	400A, 1-phase Split-Core CT with Pluggable Connector	0.5	Ø35mm	2m
PMC-SCCT-800A-40mA-A	800A, 1-phase Split-Core CT	0.5	80x50mm	Not included
PMC-SCCT-1600A-40mA-A	1600A, 1-phase Split-Core CT	0.5	130x55mm	Not included

NTC Thermistors

Part Number	Specification/Description	
NTC-104	1xThermistor Sensor with a 0.3m Cable and 2-pin Connector	
NTC-1043	3xThermistor Sensor (Yellow, Green & Red) with 2m Cables and 2-pin Connectors	
NTC-1044	4xThermistor Sensor (Yellow, Green, Red & Black) with 2m Cables and 2-pin Connectors	
NTC-104M4	1xThermistor Sensor (Ø4mm Ring Connector) with a 2m Cable and 2-pin Connector	
NTC-104M10	1xThermistor Sensor (Ø10mm Ring Connector) with a 2m Cable and 2-pin Connector	

Ordering Information




Product Code	Description
PMC-352-D DIN-Rail DC Energy Meter	
Basic Function	A 1xDC Voltage & 3xDC Current Inputs from external Hall Effect CT @ +/-4VDC Secondary, 4xNTC Inputs, 3xDI, 1xRS-485 and Modbus RTU
Input Voltage	2 240VDC (88V to 400VDC)
Power Supply	N Self-powered from Internal Voltage Inputs
I/O	A 3xDI @ 240VDC
Residual Current	N None
	R- 1xResidual Input, External Hall-Effect CT @ ±5V Secondary
Communication	N None
	L* Optional LoRa @ 860-935 MHz (Configurable)
Language	E English
PMC-352-D	- A 2 N A N N E PMC-352-D-A2NANNE (Standard Model)

* Additional charges apply

~ Please refer to the Accessories sheet to order the NTC Connector and Hall Effect Current Transducer for Sub Meter and optional Iresidual

Accessories

Hall Effect Solid Core Current Transducer

Part Number	Specification/Description	Aperture	Cable Length	
PMC-DCT-B-100A-4V-A	50 (100) A, Sub Meter Hall Effect Solid Core CT	20x10mm	Customized	
PMC-DCT-50mA-5V-B	50 (60) A, Iresidual Hall Effect Solid Core CT	182x38mm	Customized	
PMC-DCT-10mA-5V-A	10 (12) mA, Iresidual Hall Effect Solid Core CT	Ø20mm	Customized	

CT Adaptor

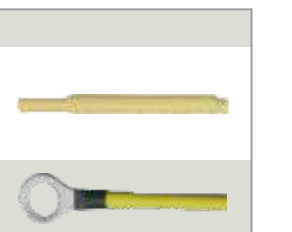
Part Number	Specification/Description	Cable Length
PMC-BCC-352D-3	3xSub Meter CTs can be connected through one Adaptor	0.5m
PMC-BCC-352D-4	3xSub Meter and 1xResidual CTs can be connected through one Adaptor	0.5m

1) Please refer to Cable Length for details and contact the factory in advance for special requirements

2) The Hall Effect CT shall be powered by PMC-352-D through the CT Adaptor, no need for external power supply

3) The PMC-BCC-352D-4 Adaptor must be selected when Residual Input is equipped

NTC Thermistors

Part Number	Specification/Description	
NTC-104	1xThermistor Sensor with a 0.3m Cable and 2-pin Connector	
NTC-1043	3xThermistor Sensor (Yellow, Green & Red) with 2m Cables and 2-pin Connectors	
NTC-1044	4xThermistor Sensor (Yellow, Green, Red & Black) with 2m Cables and 2-pin Connectors	
NTC-104M4	1xThermistor Sensor (Ø4mm Ring Connector) with a 2m Cable and 2-pin Connector	
NTC-104M10	1xThermistor Sensor (Ø10mm Ring Connector) with a 2m Cable and 2-pin Connector	

Accuracy Parameters

	Accuracy	Resolution
Voltage	±0.5%	0.001V
Current	±0.5% + Hall Effect SCCT	0.001A
kW	±1.0%	0.001kW
kWh	IEC 62053-21 Class 1	0.01kWh
Residual Current	±0.5% + Hall Effect SCCT	0.1mA
Temperature	±1°C	0.1°C

Technical Specifications

Voltage Inputs (V+, V-)

Voltage (Un)	240VDC
Range	100 to 400 VDC
Starting Voltage	88V
Overload	400V continuous

Current Inputs (HALL)

Current (In)	±4VDC (for use with 100A Hall Effect Solid Core CT)
Range	0.8% to 100% In
Overload	1.2xIn continuous, 10xIn for 1s
Starting Current	0.8% In
Burden	< 2VA
Nominal Output	±4V

Power Supply (Self-Powered via Voltage Input)

Nominal Voltage	240VDC
Range	88 to 400VDC
Burden	< 3VA

Digital Inputs (DI1, DI2, DI3, DIC)

Type	240VDC Externally Excited
Sampling	1000Hz
Hysteresis	1ms minimum

Residual Current (IR)

In	±5VDC (for use with 50mA/10mA Residual Hall Effect CT)
Range	0 to 120% In

NTC Temperature Inputs (TC1, TC2, TC3, TC4)

NTC Type	2-Wire Thermistors (sensor not included)
Range	-20°C to 140°C

Communications

RS-485 (Standard)	Protocol	Modbus RTU
	Baud Rate	1200/2400/4800/9600/19200/38400 bps
LoRa (Future)	RF Range	860-935 MHz (Configurable)
	ISM Bands	EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925
	RF Output Power	19 dBm (Maximum)
	Receiver Sensitivity	-137 dBm (Maximum)
	Output Watts	0.03 (Typical)
	FCC Part 15C	Certified by TCB

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Pollution Degree	2

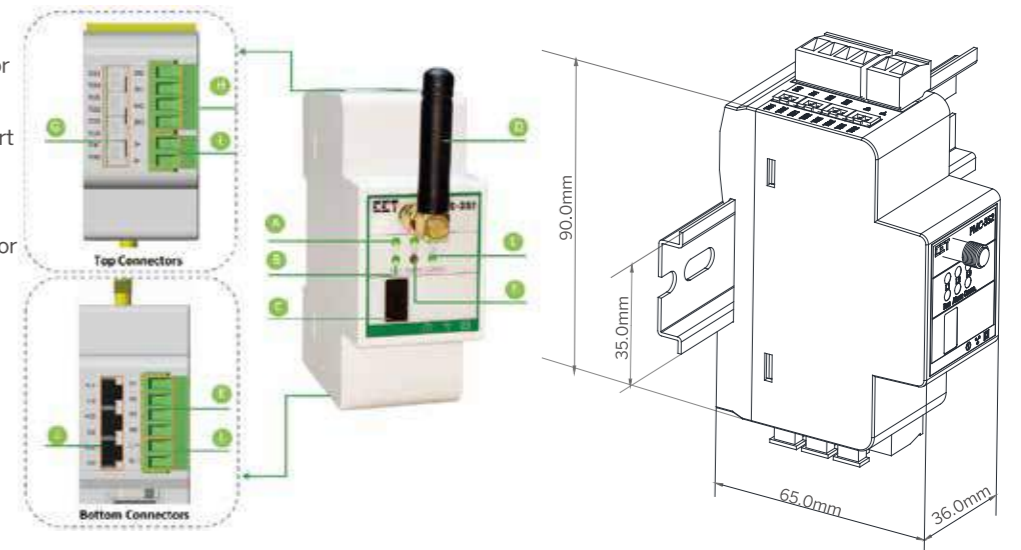
Mechanical Characteristics

Unit Dimensions	36(W)x65(D)x90(H) mm
Mounting	DIN Rail
IP Rating	30

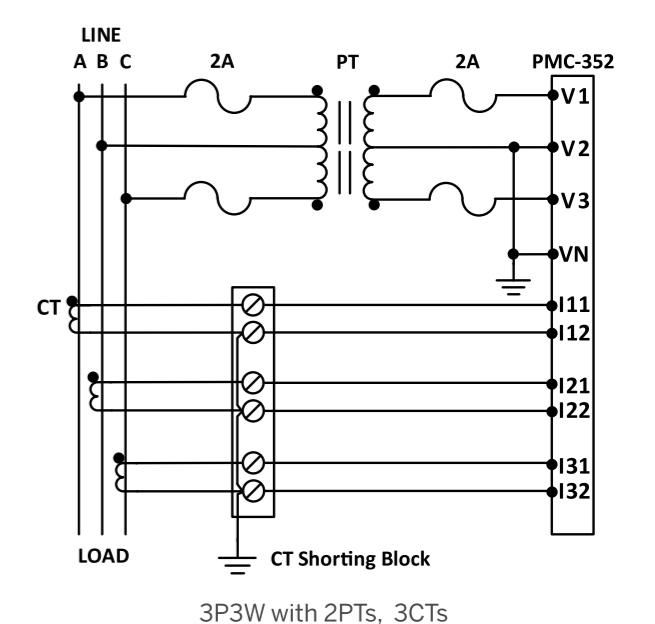
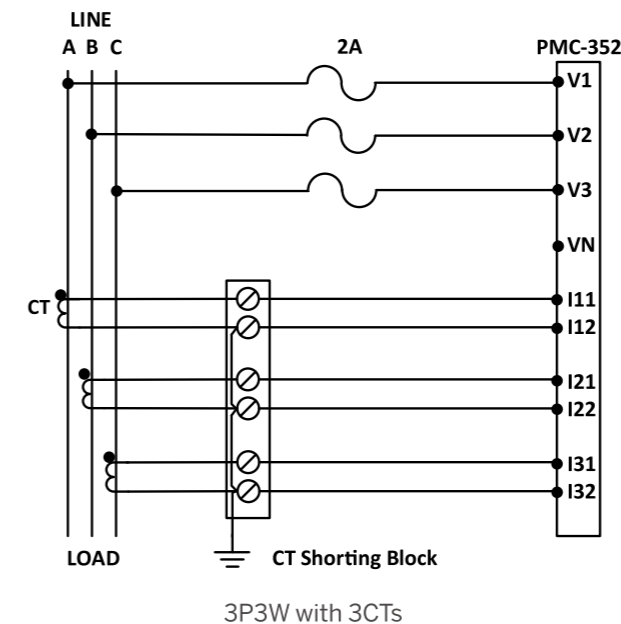
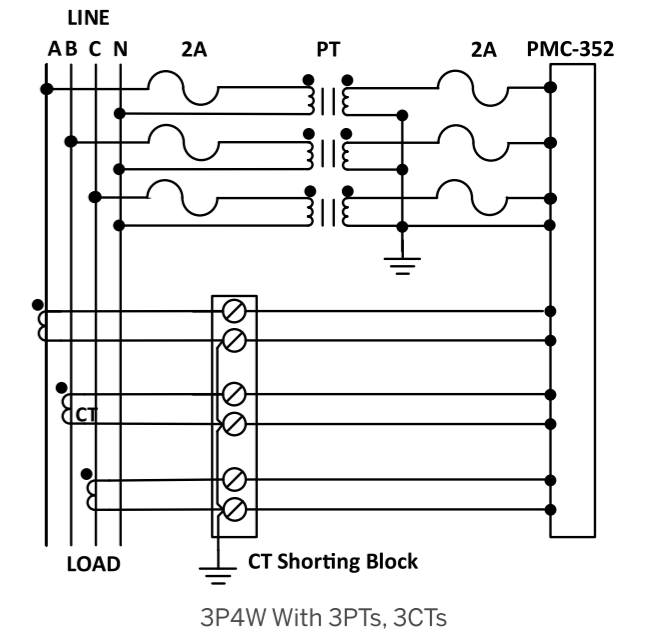
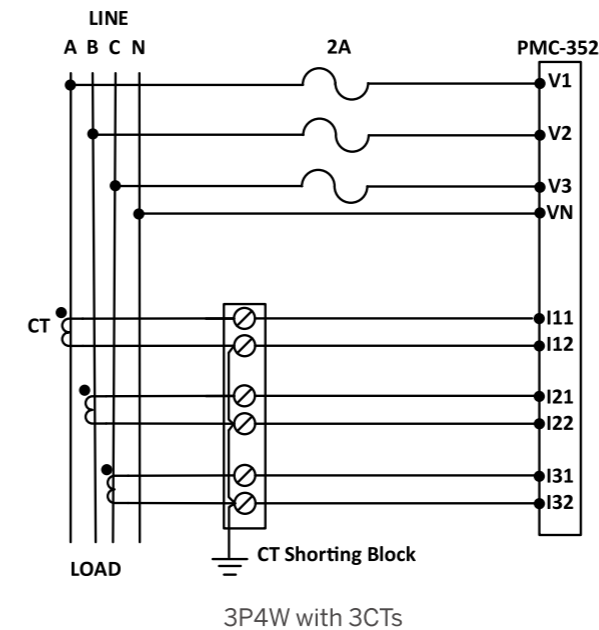
Device View and Dimensions

Unit: mm

- A Voltage Phase Loss Indicator
- B Device Running Status
- C Infrared Communication Port
- D LoRa Antenna (Optional)
- E Communication Indicator
- F Alarm/Energy Pulse Indicator
- G 4xNTC Input
- H 3xDigital Input
- I 1xRS-485
- J 3xCurrent Input
- K 3xVoltage Input
- L Power Supply (Optional)



Wiring Diagrams



PMC-352-D

DC Energy Meter



- ✓ IEC 62053-21 Class 1
- ✓ Unit Dimensions @ 36x65x90 mm
- ✓ Optically isolated RS-485 port
- ✓ Hall Effect Solid-Core CT

Features Summary

General

Class (kWh)	1
Dimensions (mm)	36(W)x90(H)x65(D)
Display (Backlit)	-
True RMS Sampling Rate	64
Battery-backed Real-time Clock	-
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU, LoRa*(BUILT-IN LoRa with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925)
RS-485 Port	1
Ethernet	-
Web Server	-

*The LoRa option will be supported in the future

Measurements

Voltage	✓
Current	✓
kW	✓
kWh Import/Export	kWh
Demands & TOU	Dmd. Only
Setpoints	✓

Power Quality

THD Voltage & Current	-
TOHD Voltage & Current	-
TEHD Voltage & Current	-
K-Factor	-
Individual Harmonics	-
Voltage/Current Unbalance	-
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

I/O

Digital Input (DI)	3
Pulse Counter	-
Mechanical Digital Output (DO)/Solid State Output (SS)	-
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	-
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	-

Logs

SOE Log	16 entries
PQ Log	-
Energy Log	-
Max./Min. Log	-
On-board Log Memory	-

Main Features

Metering

Basic Measurements

- 1xDC Voltage Input and 3xDC Current Inputs
- 3xDC Sub-Meters (SM), each with Current, kW, kWh, Current and kW Demand
- Low Cost DIN-Rail Energy Meter for DC Measurement
- Simple commissioning and low deployment cost with Hall Effect Solid-Core CT

Event Recorder

- 16 events time-stamped to ±1ms resolution
- Setup changes, Setpoint Alarms, DI Status changes, Clear Actions, etc.

Inputs and Outputs

- 3xDI for Status Monitoring
- 4xNTC Inputs for Temperature Monitoring (sensor not included)
- Optional 1xResidual Input for Residual Current Measurement

Communications

RS-485

- Optically isolated RS-485 port at 1200 to 38,400 bps
- Optional LoRa* @ 860-935 MHz, configurable for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923, AS923-925

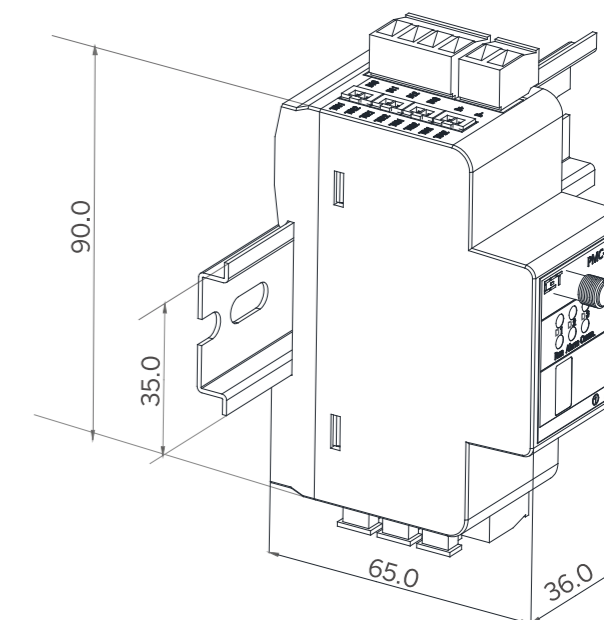
*The LoRa option will be supported in the future

Setpoints

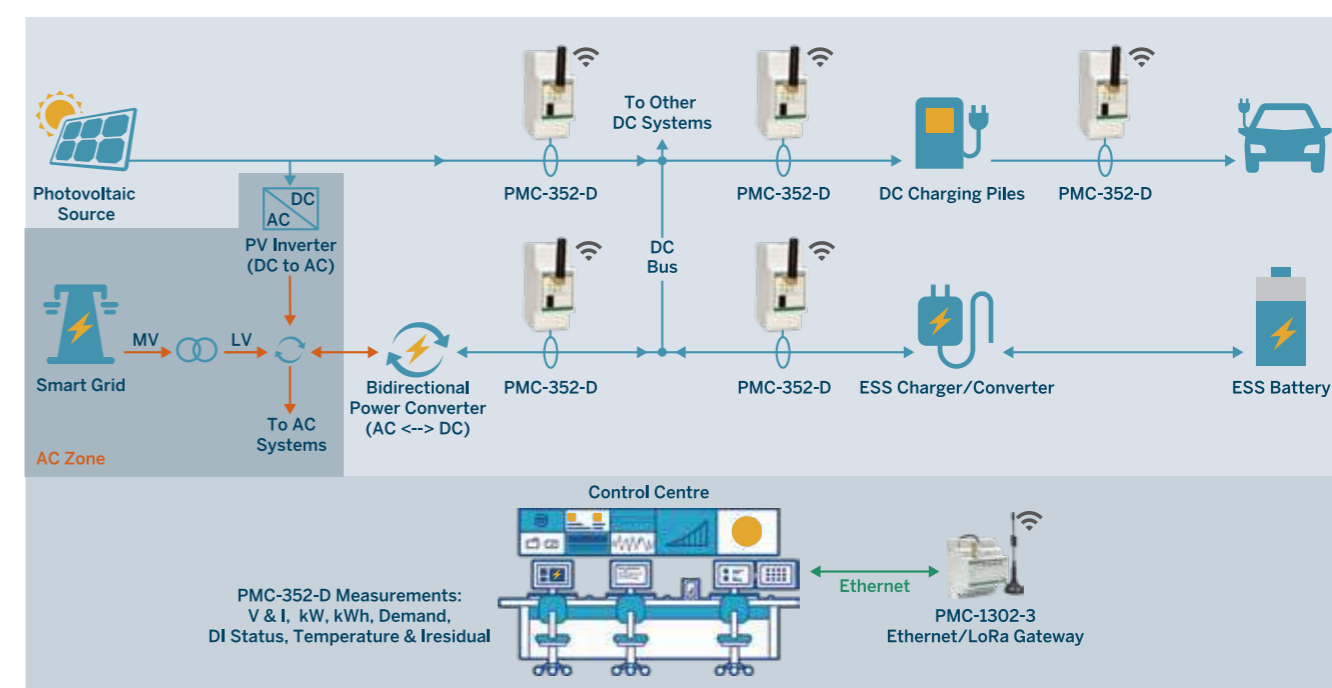
- 10 user programmable Setpoints with extensive list of monitoring parameters including Current, kW and kW Total, Temperature, Residual Current and Demand measurements
- Configurable thresholds and time delays

Device View and Dimensions

Unit: mm



Typical Application



PMC-SCCP Technical Specifications



PMC-SCCP-50A-500mV-B-A-B

Technical Specifications	Rated Nominal Current (In)	5A
	Maximum Current (Imax)	50A continuous @ 45-66Hz and 25°C
	Output Voltage	AC 10mV/A (Max. 500mV)
	Amplitude Accuracy	±0.3% rdg, ±0.02% f.s. @ 45Hz-66Hz, at core center
	Phase Accuracy	±2° (45Hz to 5kHz)
	Amplitude Frequency Characteristics	±1% (45Hz - 5kHz), deviation from accuracy
	Conductor Position	±0.5% (deviation from center)
	External Magnetic Field	≤0.1A @ 400A/m
Mechanical Characteristics	Maximum Rated Voltage to Earth	300 Vrms
	Clamp Diameter	15mm (max. conductor diameter)
	Cable Length	3m
	Dimensions (WxHxD mm)	48x 120 x 20
	Weight	200g
	Power supply	N/A
	Output Terminal	BNC
	Measurement Category	CAT III 300V
Environmental Conditions	Pollution Degree	II
	Temperature Coefficient	0.02% rdg. / °C
	Dielectric Strength	3000V AC rms for 15 seconds
	Operating Temp.	0°C to 50°C
	Storage Temp.	-10°C to 60°C
	Relative Humidity	≤80% non-condensing
	Altitude	2000m max.
Standards	Safety/EMC	Safety: EN 61010-2-032: 2012 (CAT III 300V)

SCCP Installation Procedure

Connect SSCP to Circuit:

- Align the BNC connector grooves with the connector guide of the BNC receptacle. Insert and then turn the connector clockwise to lock the connection in place.
- Pull the locking lever downward to open the clamp jaw.
- Put the clamp around only the live conductor in the center with the Current direction indicator pointing towards the load side.
- Clamp around only the Live conductor for proper measure Clamp multiple wires together single-phase or 3-phase cables will not produce any readings.
- Close the clamp jaw.
- Secure the clamp in place to avoid adding extra weight on conductor.

Digital Outputs (DO11, DO12, DO21, DO22)

Type	Form A Mechanical Relay
Loading	5A @250VAC/30VDC

RTD Input (TC11, TC12, TC21, TC22)

Type	PT100
Range	-40°C to 200 °C

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Pollution Degree	II
Overvoltage Category	CAT III

Mechanical Characteristics

Enclosure	Galvanized Steel
Unit Dimensions	260.5x154x55.5 mm
IP Rating	50

Mechanical Tests

Spring Hammer Test	IEC 62052-11: 2003
Vibration Test	IEC 62052-11: 2003
Shock Test	IEC 62052-11: 2003

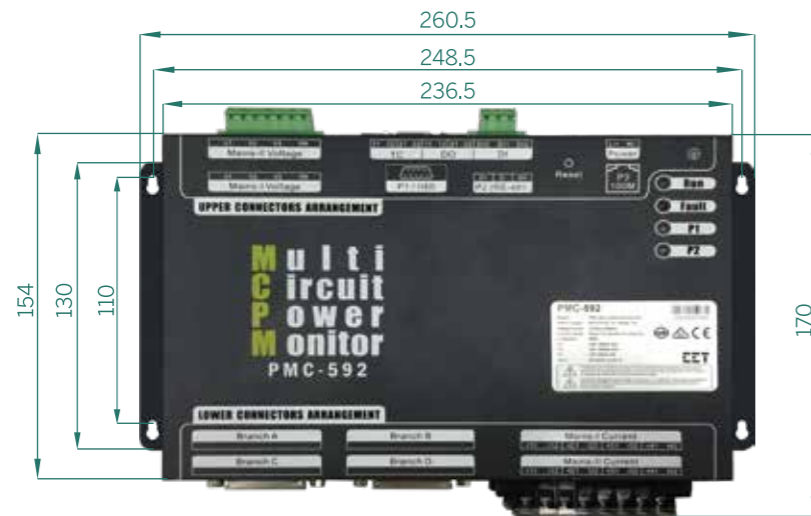
Ordering Information

Product Code	Description
PMC- 592 Multi Circuit Power Meter	
Functionality	A The PMC-592 Base Unit comes with 2xMains Inputs, each with 3-phase Voltages and 4-phase Currents, 2xRTD Inputs, 2xDI, 2xDO, 1xRS-422/485 Port (HMI Interface), 1xRS-485 Port and 1x100BaseT Port. It supports up to 4 CT Branches with a maximum 21 CTs per Branch.
Current Rating for the 2 Mains Feeders	5 1 5A: Standard 1A
Voltage Rating for the 2 Mains Feeders	3 277ULN/480ULL
Control Power Ratings	2 95-277 VAC/DC, 47-440Hz
Power System Frequency	5 6 50Hz 60Hz
Current Rating for Branch Feeders	100 010 100A Branch Current Inputs * Select this option for use with 100A Fixed Core CT Strip or with CT Adapter Board and 100A-1600A Branch SCCTs 10(5)A CT Inputs * This option cannot be used with Branch SCCTs
Language Version for Front Plate	E English: Standard for International
PMC-592	- A 5 3 2 5 100 E PMC-592-A5325100E (Standard Model)

- 1) The PT100 sensor for the RTD Input is an optional item
- 2) The PMC-592's HMI with 7" LCD with 24VDC power supply module is an optional item
- 3) Please refer to PMC-592 Accessories for details

Device View and Dimensions

Unit: mm



Accessories

Product Code		Description
PMC-592-HMI		
Basic Function	A	7" TFT LCD, 800x480, 1xRS-422/485 port, a RS-422 cable and an external 24VDC Switching Power Supply
	C	Same as 'A' but supports two PMC-592 (168 feeders)
	D	Same as 'A' but supports four PMC-592 (336 feeders)
Interface Language	E	English
PMC-592HMI	- A E	PMC-592-HMI-AE (Standard Model)



* The standard cable length for connecting the HMI to the PMC-592 Main Unit is 3.0m
Please contact the factory in advance for special requirements

Split-Core CT for Mains

Part Number	Rating	Accuracy	Aperture (mm)
PMC-SCCT-400A-1A-A	400A/1A	0.5	50x80
PMC-SCCT-600A-1A-A	600A/1A	0.5	50x80
PMC-SCCT-800A-1A-A	800A/1A	0.5	50x80
PMC-SCCT-1000A-1A-A	1000A/1A	0.5	80x120



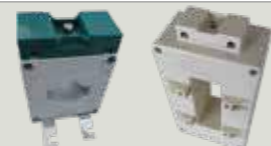
Split-Core CT for Branch Circuits

Part Number	Rating	Accuracy	Aperture (mm)
PMC-SCCT-100A-40mA-16-A	100A/40mA	Class 0.5	Ø16
PMC-SCCT-200A-40mA-24-A	200A/40mA	Class 0.5	Ø24
PMC-SCCT-400A-40mA-35-A	400A/40mA	Class 0.5	Ø35
PMC-SCCT-800A-40mA-A	800A/40mA	Class 0.5	80x50
PMC-SCCT-1600A-40mA-A	1600A/40mA	Class 0.5	130x55



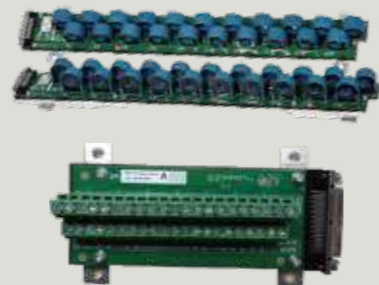
Solid-Core CT for Branch Circuits

Part Number	Rating	Accuracy	Aperture (mm)
PMC-CT-100A-40mA-12-A	100A/40mA	Class 0.2	Ø12
PMC-CT-400A-40mA-A	400A/40mA	Class 0.2	31x24
PMC-CT-800A-40mA-A	800A/40mA	Class 0.2	103x33



Branch CT Strips

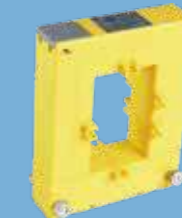
CT Strip Models	Accuracy	Aperture (mm)
CT Strip with ¾" Spacing and 21x100A CTs	0.1	11
CT Strip with 1" Spacing and 21x100A CTs	0.1	11
CT Strip with ¾" Spacing and 12x100A CTs	0.1	11
CT Strip with ¾" Spacing and 12x5A CTs	0.1	11
CT Strip with ¾" Spacing and 21x5A CTs	0.1	11
SCCT Adapter Board	-	-



PMC-SCCT-200A
-40mA-A



PMC-SCCT-400A
-40mA-A



PMC-SCCT-800A
-40mA-A

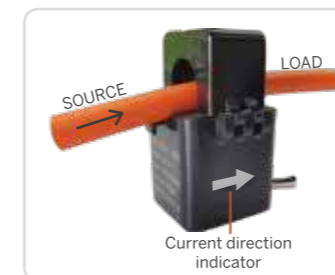


PMC-SCCT-1600A
-40mA-A

200A	400A	800A	1600A
40mA	40mA	40mA	40mA
240A, continuous	480A, continuous	960A, continuous	1920A, continuous
Class 0.5 (IEC61869-2)	Class 0.5 (IEC61869-2)	Class 0.5 (IEC61869-2)	Class 0.5 (IEC61869-2)
0.5% (5%In-120%In)	0.5% (5%In-120%In)	0.5% (5%In-120%In)	0.2% (5%In-120%In)
±0.5%	±0.5%	±0.5%	±0.5%
20±10'	10±10'	15±10'	3±5'
10Ω	10Ω	10Ω	10Ω
50-400Hz	50-400Hz	50-60Hz	50-60Hz
4000V/10s, 1mA	4000V/10s, 1mA	3000V/min, 1mA	3000V/min, 1mA
100MΩ/500VDC	100MΩ/500VDC	100MΩ/500VDC, 1min	100MΩ/500VDC, 1min
6-8V	6-8V	Transient Voltage Suppressor: TVS-P6KE6.8CA	Transient Voltage Suppressor: TVS-P6KE6.8CA
PMC-350-C, PMC-352, PMC-512-A, PMC-592, PMC-53A-E, iMeter D7, iMeter 7A	PMC-350-C, PMC-352, PMC-512-A, PMC-592, PMC-53A-E, iMeter D7, iMeter 7A	PMC-350-C, PMC-352, PMC-512-A, PMC-592, PMC-53A-E, iMeter D7, iMeter 7A	PMC-350-C, PMC-352, PMC-512-A, PMC-592, PMC-53A-E, iMeter D7, iMeter 7A
√	√	√	√
Flame Rating 94-V0	Flame Rating 94-V0	Flame Retardant	Flame Retardant
54x70x40	67x83x43	114x145x32	143x191x49
Ø24	Ø35	50x80	55x130
Split-Core	Split-Core	Split-Core	Split-Core
2m, 22AWG Black and White Stranded Wire (with pluggable connector when used with PMC-350-C and PMC-352)	2m, 22AWG Black and White Stranded Wire (with pluggable connector when used with PMC-350-C and PMC-352)	2m, 22AWG Black and White Stranded Wire (with pluggable connector when used with PMC-350-C and PMC-352)	2m, 22AWG Black and White Stranded Wire (with pluggable connector when used with PMC-350-C and PMC-352)
-20°C to 50°C	-20°C to 50°C	-15°C to 50°C	-25°C to 70°C
≤85%	≤85%	≤85%	≤85%
70-106kpa	70-106kpa	80-110kpa	80-110kpa

Disconnect SCCT from Circuit:

- Open the hinge lock or pull apart the top part of the CT.
- Remove the CT from the conductor.
- Remove the CT's secondary wiring from meter terminals.



PMC-SCCT Technical Specifications



PMC-SCCT-5A
-1.667mA-A



PMC-SCCT-5A
-2mA-A



PMC-SCCT-100A
-40mA-A

Technical Specifications

Rated Primary Current	5A	5A	100A
Rated Secondary Current	1.667mA	2mA	40mA
Maximum Current (Imax)	10A, continuous	20A, continuous	120A, continuous
Accuracy	Class 1 (IEC61869-2)	Class 1 (IEC61869-2)	Class 0.5 (IEC61869-2)
Linearity	1% (5%In-120%In)	1% (5%In-400%In)	0.5% (5%In-120%In)
Magnitude Accuracy (@full load)	±0.5%	±0.5%	±0.5%
Phase Accuracy (@full load)	85±15'	70±20'	40±15'
Rated Load	200Ω	226Ω	20Ω
Bandwidth	50-400Hz	50-400Hz	50-400Hz
Withstand Voltage (Core to Coil)	4000V/10s, 1mA	4000V/10s, 1mA	4000V/10s, 1mA
Insulation Resistance	100MΩ/500VDC	100MΩ/500VDC	100MΩ/500VDC
Open-Circuit Protection Voltage	6-8V	6-8V	6-8V

Mechanical Characteristics

Applicable Meter	PMC-512-A	PMC-350-C, PMC-352, PMC-D726M, iMeter D7, iMeter 7A	PMC-350-C, PMC-352, PMC-512-A, PMC-592, PMC-53A-E, iMeter D7, iMeter 7A
RoHS Compliance	✓	✓	✓
Enclosure	Flame Rating 94-V0	Flame Rating 94-V0	Flame Rating 94-V0
Dimensions (WxHxD mm)	31x43x29	38x49x34	38x49x34
CT Window (mm)	Ø10	Ø16	Ø16
Core Type	Split-Core	Split-Core	Split-Core
Secondary Output Cable	2m, 22AWG Black and White Stranded Wire	2m, 22AWG Black and White Stranded Wire (with pluggable connector when used with PMC-350-C and PMC-352)	2m, 22AWG Black and White Stranded Wire (with pluggable connector when used with PMC-350-C and PMC-352)

Environmental Conditions

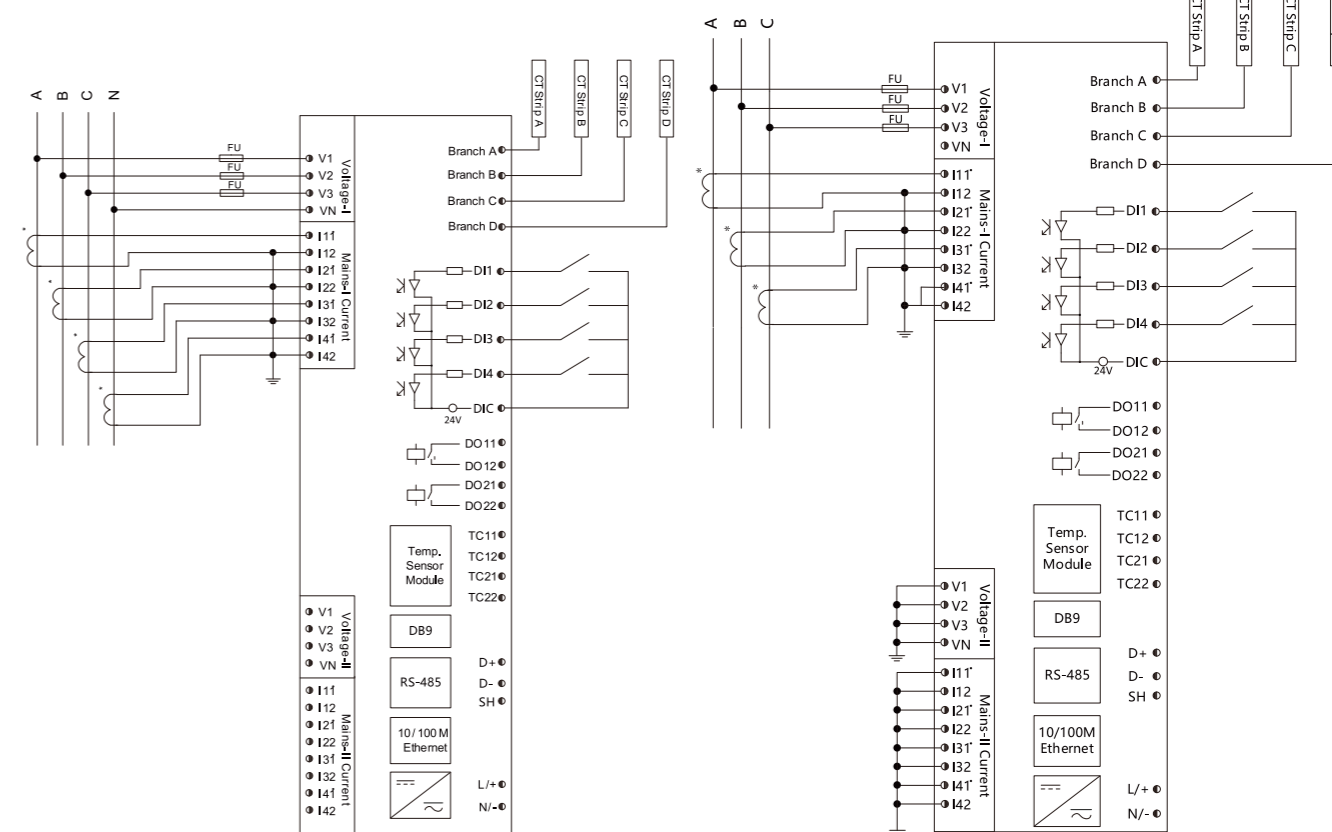
Operating Temperature	-20°C to 50°C	-20°C to 50°C	-20°C to 50°C
Humidity	≤85%	≤85%	≤85%
Atmospheric Pressure	70-106kpa	70-106kpa	70-106kpa

SCCT Installation Procedure

Connect SCCT to Circuit:

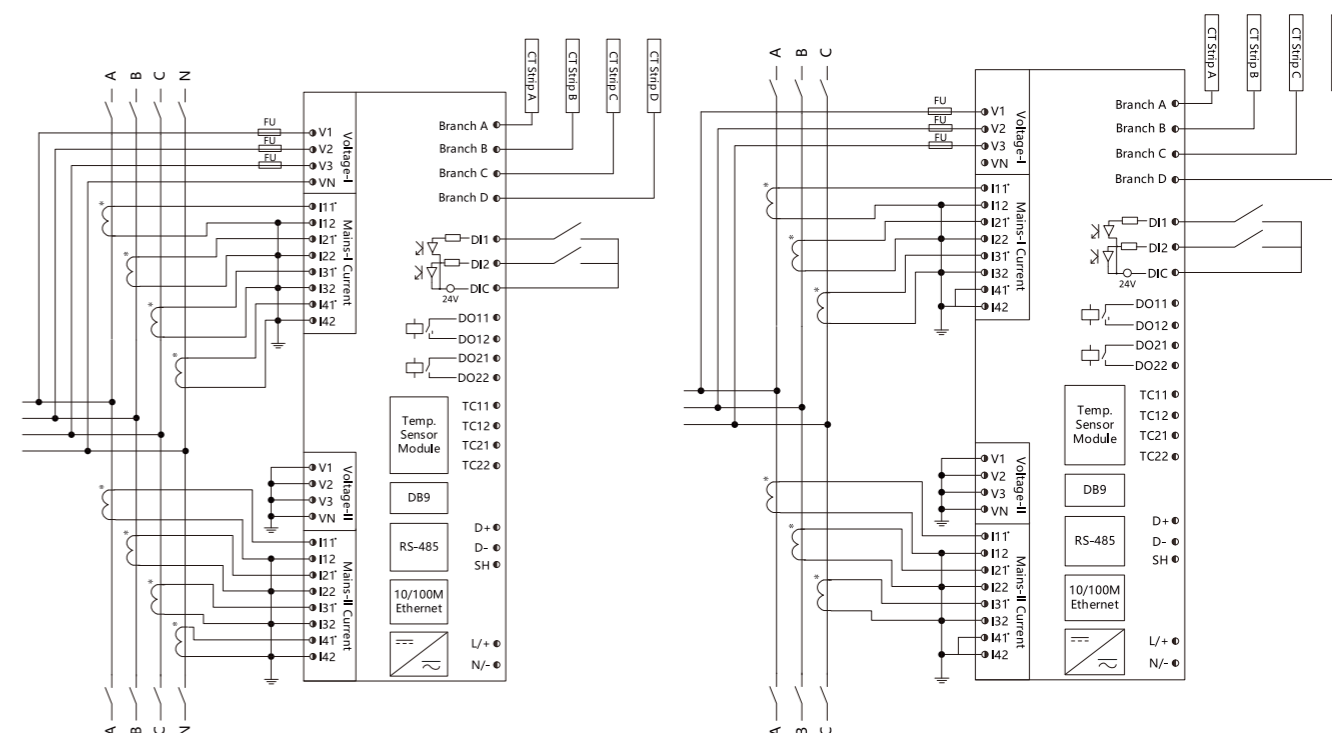
- Secure CT on board and connect the CT's secondary output to meter terminals.
- Open the hinge lock or pull apart the top part of the CT. Install the CT around the conductor to be measured.
- Verify if the CT is installed in the same current flow direction as marked on CT.
- Close the hinge lock or reattach the removable top part of the CT.
- For personnel safety and device protection. It is very important to maintain a closed circuit on the secondary winding when current is flowing through the primary circuit.
- If meter or device in the secondary circuit need to be serviced. A CT shorting block should be used to maintain a closed circuit on CT secondary.

Wiring Diagrams



Single Panel Mode with One Mains Only (Wye)

Single Panel Mode with One Mains Only (Delta)



Single Panel Mode with Two Mains (Wye)

Single Panel Mode with Two Mains (Delta)

PMC-512-A

AC Multi-Circuit Power Monitor



- ✓ 4MB Log Memory
- ✓ Class 1 Accuracy for Energy Measurements
- ✓ Optional 7" Touch-Screen HMI
- ✓ DIN Rail Mount Enclosure with LCD Display
- ✓ Dual RS-485 Ports
- ✓ 12x1-Ø or 4x3-Ø Sub-Meters
- ✓ 12xDI, 1xDO

Features Summary

General

Class (kWh)	1
Dimensions (mm)	126(W)x90(H)x65(D)
Display (Backlit)	B&W (Backlit)
True RMS Sampling Rate	64
Battery-backed Real-time Clock	✓
Operating Temperature (°C)	-25 to 70

Communications

Protocol	Modbus RTU
RS-485 Port	2
Ethernet	-
Web Server	-

Measurements

ULN per Phase & Avg.	✓
ULL per Phase & Avg.	✓
Current per Phase & Avg.	✓
Neutral Current (Meas./Calc.)	✓
Frequency	✓
kW per Phase & Total	✓
kvar per Phase & Total	✓
kVA per Phase & Total	✓
PF per Phase & Total	✓
kWh Import/Export	✓
kvarh Import/Export	✓
kVAh Total	✓
Demands & TOU	Dmd. Only
Maximum Demands	✓
Setpoints	✓

Logs

SOE Log	512 entries
PQ Log	-
Energy Log	✓
Max./Min. Log	-
On-board Log Memory	4MB

I/O

Digital Input (DI)	12
Pulse Counter	✓
Mechanical Digital Output (DO)/Solid State Output (SS)	1DO
Analog Input (AI), 0/4-20mA	-
Analog Output (AO), 0/4-20mA	-
kWh & kvarh Pulse Output (LED)	✓
kWh & kvarh Pulse Output	-
IRIG-B (GPS)	-

Power Quality

THD Voltage & Current	✓
TOHD Voltage & Current	✓
TEHD Voltage & Current	✓
K-Factor	✓
Individual Harmonics	2 nd - 31 st
Voltage/Current Unbalance	✓
Waveform Capture on Screen	-
Waveform Recording	-
Dip Swell Detection	-
Transient Detection	-
IEC 61000-4-30	-
2-150kHz Conducted Emission	-

(Meas./Calc.)-Measured Value/Calculated Value (Dmd.)-Demand



PMC-CT-100A-40mA-12-A



PMC-CT-250A-40mA-A



PMC-CT-400A-40mA-A

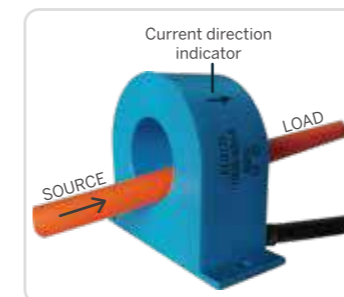


PMC-CT-800A-40mA-A

100A	250A	400A	800A
40mA	40mA	40mA	40mA
120A, continuous	300A, continuous	480A, continuous	960A, continuous
Class 0.2 (IEC61869-2)	Class 0.2 (IEC61869-2)	Class 0.2 (IEC61869-2)	Class 0.2 (IEC61869-2)
0.1% (5%In-120%In)	0.2% (5%In-120%In)	0.2% (5%In-120%In)	0.2% (5%In-120%In)
±0.1%	±0.2%	±0.2%	±0.2%
4±4'	±15'	±15'	±15'
20Ω	20Ω	20Ω	20Ω
50-400Hz	50-400Hz	50-400Hz	50-400Hz
2500V/min, 1mA	4000V/min, 1mA	4000V/min, 1mA	4000V/min, 1mA
1000MΩ/500VDC, 1min	1000MΩ/500VDC, 1min	1000MΩ/500VDC, 1min	1000MΩ/500VDC, 1min
Transient Voltage Suppressor: TVS-P6KE6.8CA	Transient Voltage Suppressor: TVS-P6KE6.8CA	Transient Voltage Suppressor: TVS-P6KE6.8CA	Transient Voltage Suppressor: TVS-P6KE6.8CA
PMC-512-A, PMC-592	PMC-512-A, PMC-592	PMC-512-A, PMC-592	PMC-512-A, PMC-592
✓	✓	✓	✓
ABS Flame Retardant	ABS Flame Retardant	ABS Flame Retardant	ABS Flame Retardant
52x40x22	59x79x31	59x79x31	105x191x56
Ø12	31x24	31x24	103x33
Solid-Core	Solid-Core	Solid-Core	Solid-Core
2m, UL1015 22AWG Black and White Stranded Wire	N/A	N/A	N/A
-40°C to 75°C	-40°C to 85°C	-40°C to 85°C	-40°C to 85°C
≤95%	≤95%	≤95%	≤95%
80-110kpa	80-110kpa	80-110kpa	80-110kpa

Disconnect CT from Circuit:

- Completely shut down the power circuit before removing CT.
- Remove the phase conductor from one end. Remove the CT from the conductor and from meter terminals.
- Reconnect the conductor to the power circuit.



PMC-CT Technical Specifications



	50A & 100A	250A	630A
Rated Primary Current (In)	50A & 100A	250A	630A
Rated Secondary Current	40mA	40mA	40mA
Maximum Current (Imax)	60A & 120A, continuous	300A, continuous	756A, continuous
Accuracy	Class 0.1 (IEC61869-2)	Class 0.2 (IEC61869-2)	Class 0.2 (IEC61869-2)
Linearity	0.1% (5%In-120%In)	0.2% (5%In-120%In)	0.2% (5%In-120%In)
Magnitude Accuracy (@full load)	±0.1%	±0.2%	±0.2%
Phase Accuracy (@full load)	±10'	±30'	±15'
Rated Load	20Ω	50Ω	50Ω
Bandwidth	50-400Hz	40-400Hz	40-400Hz
Withstand Voltage (Core to Coil)	4000V/min, 1mA	2500V/min, 1mA	2500V/min, 1mA
Insulation Resistance	1000MΩ/500VDC, 1min	1000MΩ/500VDC, 1min	1000MΩ/500VDC, 1min
Open-Circuit Protection Voltage	Transient Voltage Suppressor: TVS-P6KE6.8CA	Transient Voltage Suppressor: TVS-P6KE6.8CA	Transient Voltage Suppressor: TVS-P6KE6.8CA
Applicable Meter	PMC-512-A	PMC-512-A	PMC-512-A
RoHS Compliance	✓	✓	✓
Enclosure	ABS Flame Retardant	ABS Flame Retardant	ABS Flame Retardant
Dimensions (WxHxD mm)	53x62x72	59x127x52	184x78x65
CT Window (mm)	3x Ø10	3x Ø20	3x Ø40
Core Type	3-P Moulded Case	3-P Moulded Case	3-P Moulded Case
Secondary Output Cable	2m, UL 20251 28AWG 6P6C 3U Flat wire, with RJ12 Connector	2m, 28AWG, 6P6C 3U Red Flat Lead, with RJ12 Connector	2m, 28AWG, 6P6C 3U Red Flat Lead, with RJ12 Connector
Operating Temperature	-40°C to 85°C	-40°C to 75°C	-40°C to 75°C
Humidity	≤95%	≤75%	≤75%
Atmospheric Pressure	80-110kpa	80-110kpa	80-110kpa

Technical Specifications

Mechanical Characteristics

Environmental Conditions

CT Installation Procedure

Connect CT to Circuit:

- Completely shut down the power circuit before CT installation.
- Secure CT on board and connect the CT's secondary output to meter terminals.
- The phase conductor being measured should be disconnected at one end and feedthrough the CT opening.
- Verify if the CT is installed in the same current flow direction as marked on CT.
- Reconnect the conductor to the power circuit.
- For personnel safety and device protection. It is very important to maintain a closed circuit on the secondary winding when current is flowing through the primary circuit.
- If meter or device in the secondary circuit need to be serviced. A CT shorting block should be used to maintain a closed circuit on CT secondary.

Main Features

Metering

- ULN & ULL per Phase and Average, Phase Angle, Ung, Frequency
- 1-Ø SM: Current, Phase Angle, Loading Factor, P, Q, S, PF, kWh, kvarh Import/Export, kVAh
- 3-Ø SM: I Average, P, Q, S, PF Total, kWh, kvarh Import/Export, kVAh Total
- VM: P, Q, S Total, kWh, kvarh Import/Export, kVAh Total

Virtual Meters (VM)

- Up to 4 Virtual Meters for arbitrary aggregation of 1-Ø SMs
- kWh/kvar/kVA Total (via communications only)
- kWh/kvarh Import/Export and kVAh Total
- kWh/kvar/kVA Total Demand and Maximum Demand with Timestamp (via communications only)

Demand Measurements

- 1-Ø SM: Current, P, Q, S
- 3-Ø SM and VM: P, Q, S Total
- Maximum Demands for This Month & Last Month
- Ability to reset any Maximum Demands

Data and Event Recorders

- 4MB Log Memory

Data Recorder

- Up to 60 parameters @ min. 1-min recording interval for 5,000 logs with Timestamps
- 24 Monthly Energy Logs
- 1-Ø SM, 3-Ø SM and VM: kWh, kvarh Import/Export & kVAh
- 1,000 Freeze Logs

- 1-Ø SM: Current, P, Q, S, kWh, kvarh Import/Export & kVAh
- 3-Ø SM and VM: P, Q, S Total, kWh, kvarh Import/Export & kVAh

SOE Log

- 512 FIFO events time-stamped to ±1ms resolution
- DI/DO changes, Alarms, Setup changes, Self-Diagnosis

Alarm Monitoring

- 4 Alarm Levels for Voltage, Current
- Frequency, Unbalance, DI, Phase Reversal & Phase Loss Alarms
- Programmable Digital Output Trigger
- Facilitate comprehensive monitoring and alarming for Mains & Branch Circuits

Inputs and Outputs

Digital Inputs

- 12xDI, Dry Contact with 24VDC self-excitation

Digital Output

- 1xDO, mechanical relay @ 250VAC/5A or 30VDC/5A

Communications

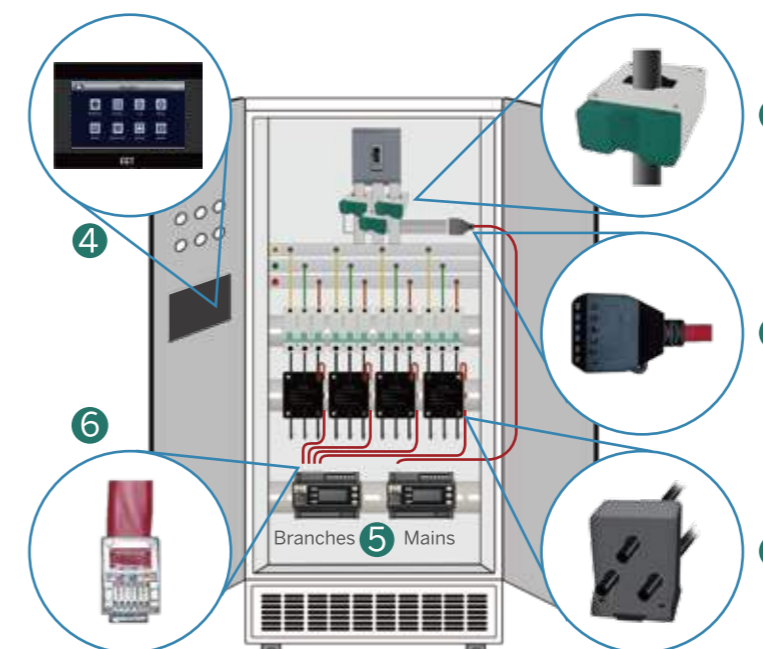
RS-485 (P1, P2)

- 2xRS-485, Modbus RTU protocol
- Baud Rate @ 1,200 to 57,600 bps

PQ Metering

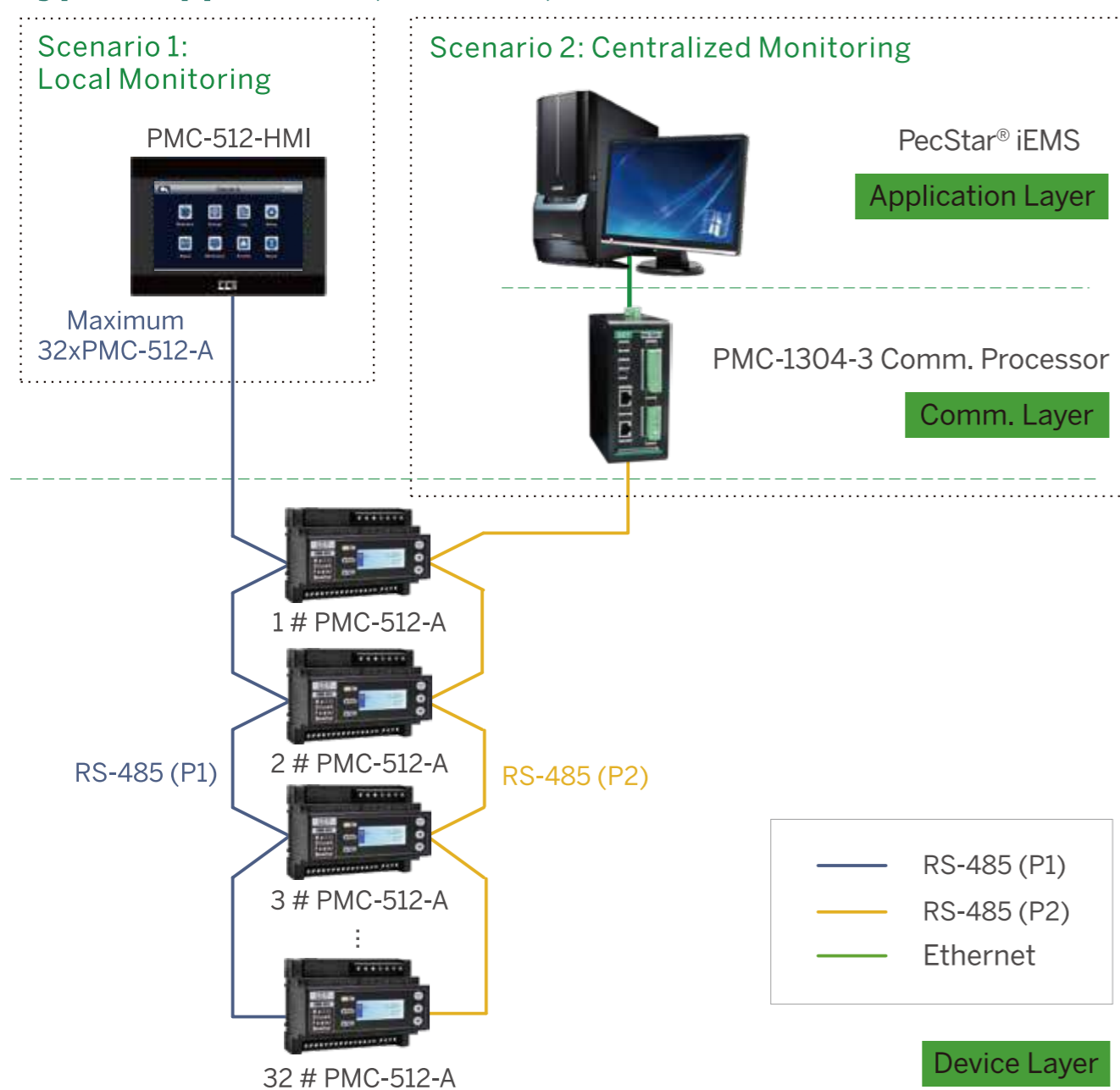
- THD, TOHD, TEHD
- Individual Harmonics up to 31st
- U and I Unbalance

Typical Application



- Mains Solid-Core/Split-Core CTs**
1 for each Phase
- 6-position CT wiring adapter with RJ12 connector for 1-Ø CT**
1 Adapter for 3x1-Ø CTs
- Molded Case 3-Ø CT**
3x1-Ø Circuits or 1x3-Ø Circuit
- PMC-512-HMI**
 - 7" TFT Touch-Screen Color LCD Display @ 800x480
 - Requires 24VDC Power Supply
 - Supports 32xPMC-512-A
- PMC-512-A**
- RJ12 connector**

Typical Application (Continue)



Accuracy

Parameters	Accuracy	Resolution
Voltage	±0.5%	0.01V
Current	±0.5%	0.001A
Phase Angle	±1°	0.1°
kW, kvar, kVA	±1.0%	0.001kX
kWh	IEC 62053-21 Class 1	0.01kWh
kvarh	IEC 62053-23 Class 2	0.01kvarh
PF	±1.0%	0.001
Frequency	±0.02Hz	0.01Hz
THD	IEC 61000-4-7 Class B	0.1%
Voltage Unbalance	±0.2%	0.01%
Current Unbalance	±1.0%	0.01%

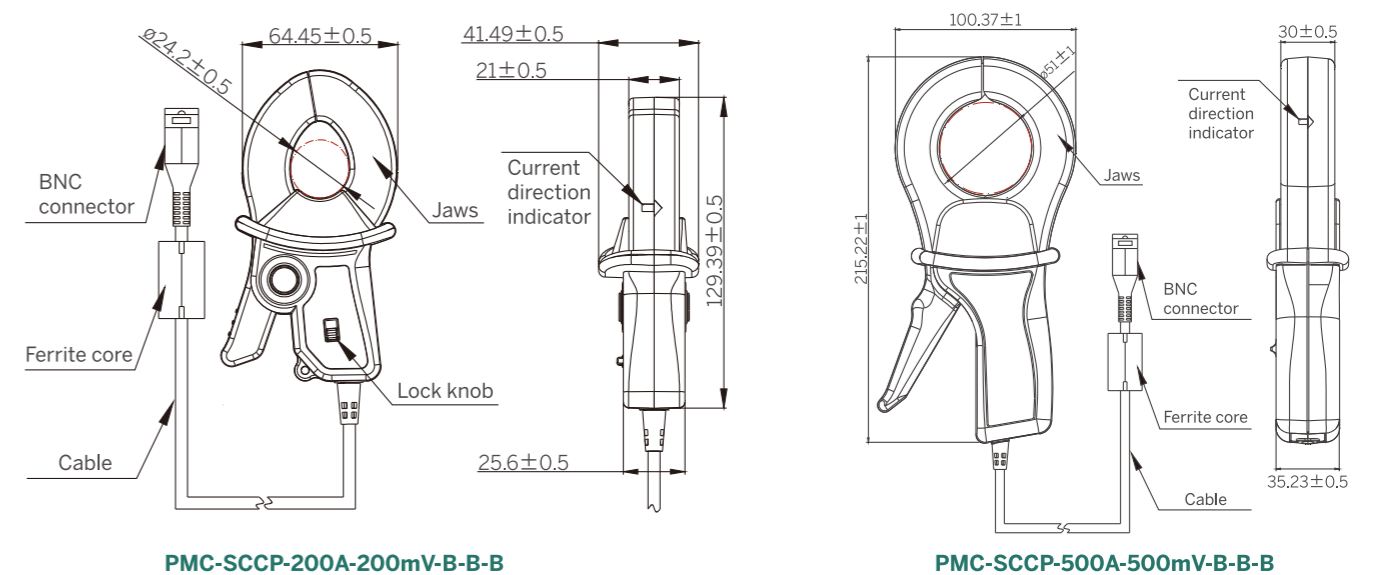
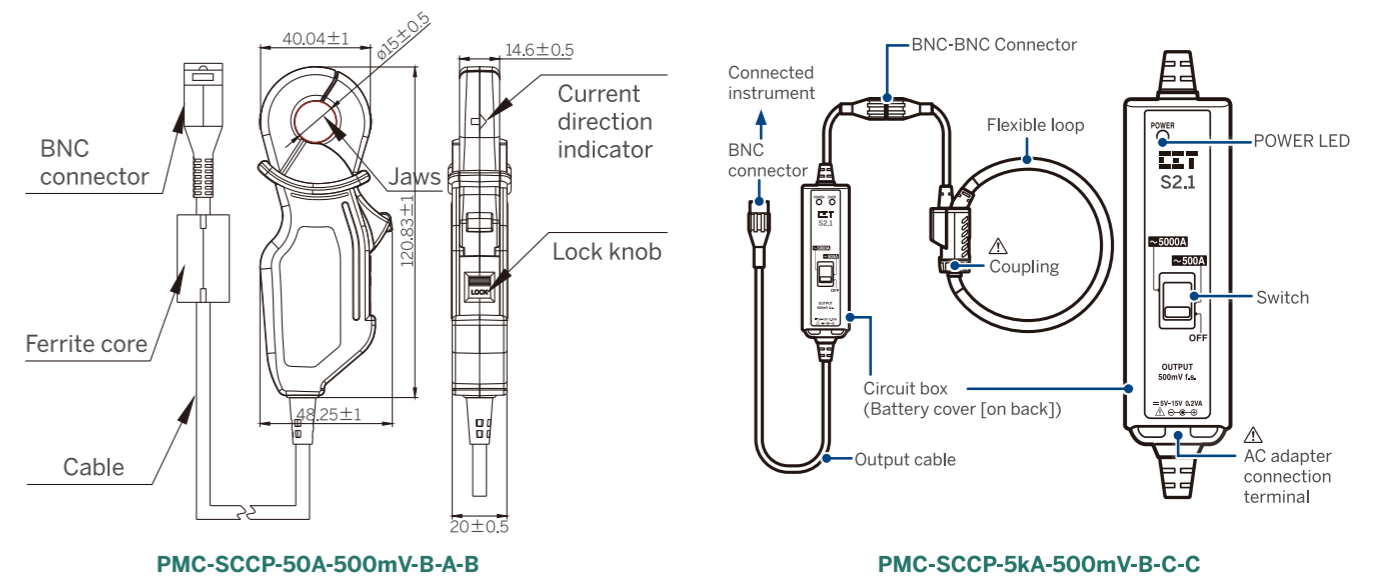
Power Supply (L+, N-, GND)

48VDC Power Supply	20-60VDC±10%, <2W
240V Power Supply	95-250VAC/DC 47-440Hz, <2W

Device View and Dimensions

Unit: mm

PMC-CT, SCCT & SSCP



Maintenance

- Always keep the clamp closed when it's not being used to prevent dust or exterior objects from accumulating on the contact surfaces inside the clamp jaw for best electrical and mechanical performance.
- Bending, pinching or pulling on the cable could cause permanent damage to the cable's insulation properties.
- Clean the surface of the instrument periodically with a soft cloth dampened with water or mild detergent.
- Do not use abrasive cleaner or solvent such as benzene alcohol, acetone, ether, ketones, thinners or gasoline as they can deform or cause discoloration to the case.
- Do not submerge the instrument in liquid or expose it to moisture or high humidity as these would cause oxidation and degrade its performance.
- Do not expose the instrument to direct sunlight, high temperature, high humidity or condensation for an extended period of time. Doing so may damage its insulation such that it no longer meets its safety specifications.
- Should the instrument appear to malfunction, please contact your local CET representative or distributor for support. Do not attempt to open the instrument as doing so will void the warranty.

PMC-CT, SCCT & SCCP

Current Transformer and Current Probe



- ✓ Designed for CET's Meters and Analyzers
- ✓ Wide Application Range from 5A to 5000A
- ✓ CT & SCCT: RoHS Compliance
- ✓ SCCP: EN 61010-2-032: 2012 Safety Compliance

Caution

- Avoid using the instrument if it has been exposed to rain or moisture, or if your hands are wet.
- To avoid unexpected injury when performing measurements on live conductors, always put on insulated gloves, boots, safety helmet and other personal protective equipment.
- The instrument should only be connected to the secondary side of a breaker, which is designed to prevent accidents in the event of a short circuit. The product should never be used on the primary side of a breaker because un-restricted current could cause serious accidents if a short circuit occurs.
- To avoid short circuits and potentially life threatening hazards, never attach the instrument to a circuit that operates at a voltage exceeding its rated value.
- Never use the instrument to measure currents that are higher than the rated maximum limit for an extended period of time or it may cause permanent damage to the instrument.
- Do not use the instrument around non-insulated conductors or if the insulation has been damaged.
- The secondary output should be connected to the receiving circuit and should not be left open-circuited before connecting the instrument to a live conductor.
- Dropping the instrument or subjecting it to mechanical shock could cause damage to the contact mechanism and adversely affect its measurement accuracy.



Voltage Inputs (V1, V2, V3, VN)

Standard (Un)	Range	10V to 1.2Un
	Start Voltage	10V
	Overload	1.2xUn continuous, 2xUn for 10s
	Burden	<0.05VA per phase
Ung	Range	0-5V
Frequency		45-65Hz

Current Inputs (I11, I12, I21, I22, I31, I32)

In Primary	5A/50A/100A/200A/250A/400A/800A/1600A
In Secondary	1.667mA for 5A
	40mA for 50A/100A/200A/250A/400A/800A/1600A
Range	0.4% to 100% In Primary
Starting Current	0.004In Primary

Input & Output

Digital Input	12xDI, Dry Contact with 24VDC self-excitation
Digital Output	1xDO, Normally Open, 250VAC/5A or 30VDC/5A

Communications (D1+, D1-, D2+, D2-)

RS-485	2xRS-485, Modbus protocol, 1,200-57,600 bps
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Installation Torque

Spring Hammer Test	IEC 62052-11: 2003 Level I
Vibration Test	IEC 62052-11: 2003 Level I
Shock Test	IEC 62052-11: 2003 Level I

Environmental Conditions

Operating Temperature	-25°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70 kPa to 106 kPa
Altitude	≤2,000m

Mechanical Characteristics

Unit Dimensions	126x90x65 mm
IP Rating	IP50

Ordering Information

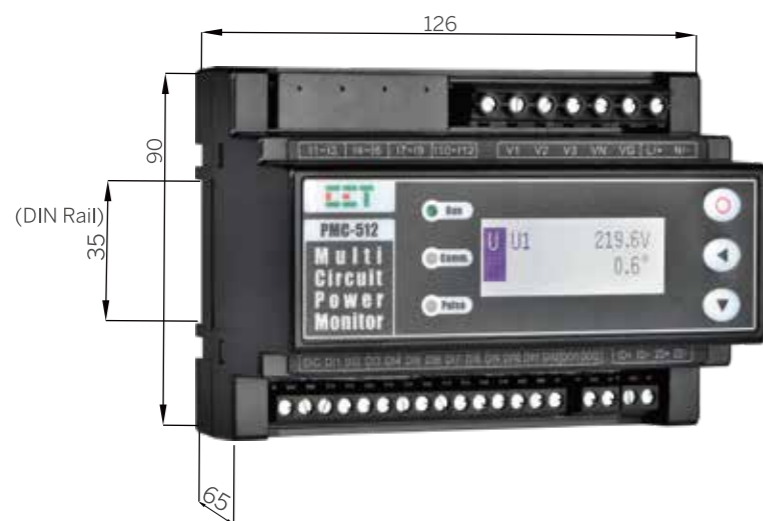
Product Code		Description
PMC-512 AC Multi-Circuit Power Monitor		AC Multi-Circuit Power Monitor with 3-Ø Voltage & 12xCurrent Inputs for 12x1-Ø or 4x3-Ø Sub-Meters, 4 Virtual Meters, Data Recorder with 4MB Memory, 12xDI, 1xDO, 2xRS-485
Basic Function	A	
Display Screen	L	LCD
Input Current	A	External CT with 50A-1600A Primary and 40mA Secondary
	B	External CT with 5A Primary and 1.667mA Secondary
Input Voltage	3	240VAC (3x240ULN/415ULL)
Power Supply	2	95-250VAC/DC, 47-440Hz
	3	20-60VDC
Frequency	5	45-65Hz
DI	C	12xDI, Dry Contact with 24VDC self-excitation
Display Language	E	English
PMC-512	- A L A 3 2 5 C E	PMC-512-ALA325CE (Standard Model)

1) The CTs and cables are not included, please refer to PMC-512-A Accessories for CT options

2) Please refer to PMC-512-HMI for HMI option

Device View and Dimensions

Unit: mm



Accessories

PMC-512-HMI

Basic Function	A	7" TFT Touch Screen LCD @ 800x480 and 24VDC±20% Power Supply, supporting up to 32xPMC-512-A	
Switching Power Supply	2	HDR-15-24 Switching Power Supply (Input: 85-264VAC/DC, Output: 24VDC)	
	4	PMC-DP-48V/24V Switching Power Supply (Input: 48VDC, Output: 24VDC)	
Language	E	English (Supports both English and Traditional Chinese)	
PMC-512-HMI	A 2 E	PMC-512-HMI-A2E (Standard Model)	

- 1) The cables for connecting the HMI to the Switching Power Supply are not included
- 2) The HMI and PMC-512 are using High-Speed communication. It is recommended to use shielded twisted-pair cable with diameter from 0.5 to 1.0mm²
- 3) Please contact the factory in advance for special requirements

Branch CTs

	Part Number	Specification	Accuracy	Aperture (mm)	Cable Length	
Split-Core	PMC-SCCT-5A-1.667mA-10-A	10A, 1-Ø Split-Core CT	1.0	Ø10	2m	
	PMC-SCCT-100A-40mA-16-A	100A, 1-Ø Split-Core CT	0.5	Ø16	2m	
	PMC-SCCT-200A-40mA-24-A	200A, 1-Ø Split-Core CT	0.5	Ø24	2m	
	PMC-SCCT-400A-40mA-35-A	400A, 1-Ø Split-Core CT	0.5	Ø35	2m	
	PMC-SCCT-800A-40mA-A	800A, 1-Ø Split-Core CT	0.5	80x50	Not included	
	PMC-SCCT-1600A-40mA-A	1600A, 1-Ø Split-Core CT	0.5	130x55	Not included	
Solid-Core	PMC-CT-100A-40mA-12-A	100A, 1-Ø Solid-Core CT	0.2	Ø12	2m	
	PMC-CT-250A-40mA-A	250A, 1-Ø Solid-Core CT	0.2	31x24	Not included	
	PMC-CT-400A-40mA-A	400A, 1-Ø Solid-Core CT	0.2	31x24	Not included	
	PMC-CT-800A-40mA-A	800A, 1-Ø Solid-Core CT	0.2	103x33	Not included	
	PMC-CT-50A-40mA-3P-A	50A, 3-Ø Molded Case CT	0.1	3xØ10	2m	
	PMC-CT-100A-40mA-3P-A	100A, 3-Ø Molded Case CT	0.1	3xØ10	2m	
	PMC-CT-250A-40mA-3P-A	250A, 3-Ø Molded Case CT	0.2	3xØ20	2m	
PMC-CT-630A-40mA-3P-A	630A, 3-Ø Molded Case CT	0.2	3xØ40	2m		

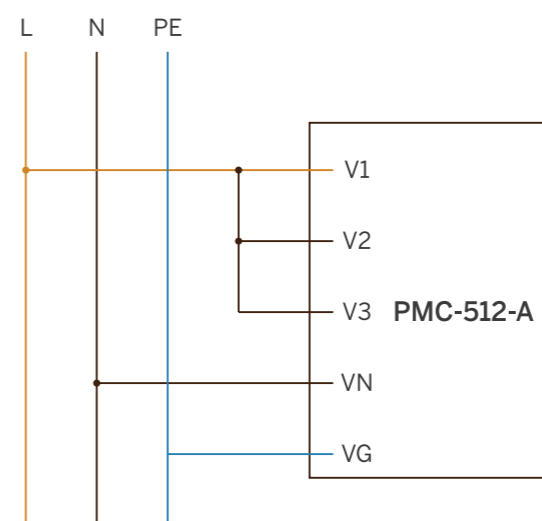
CT Adapter

Part Number	Description	Cable Length	
PMC-BCC-3CT	3 single-phase CTs can be connected through one Adapter	0.5m	

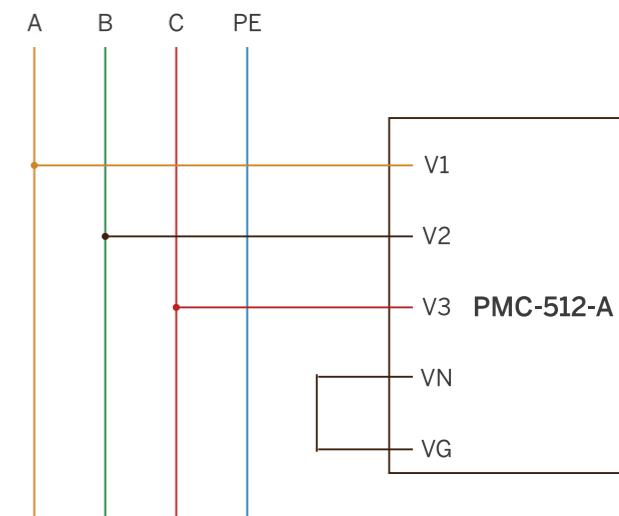
- 1) Please refer to Cable Length for details and contact the factory in advance for special requirements
- 2) The PMC-BCC-3CT Adapter must be equipped when using single-phase CTs.
- 3) For CT without CT cable, the recommended CT cable diameter is 0.5 - 1.0 mm²

Wiring Diagrams

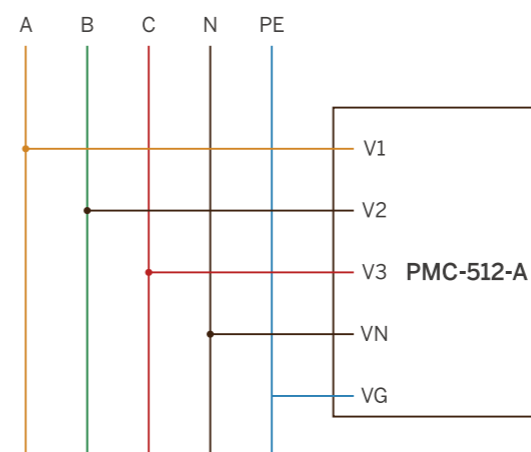
PMC-512-A



Single-Phase



3P3W Delta



3P4W Wye